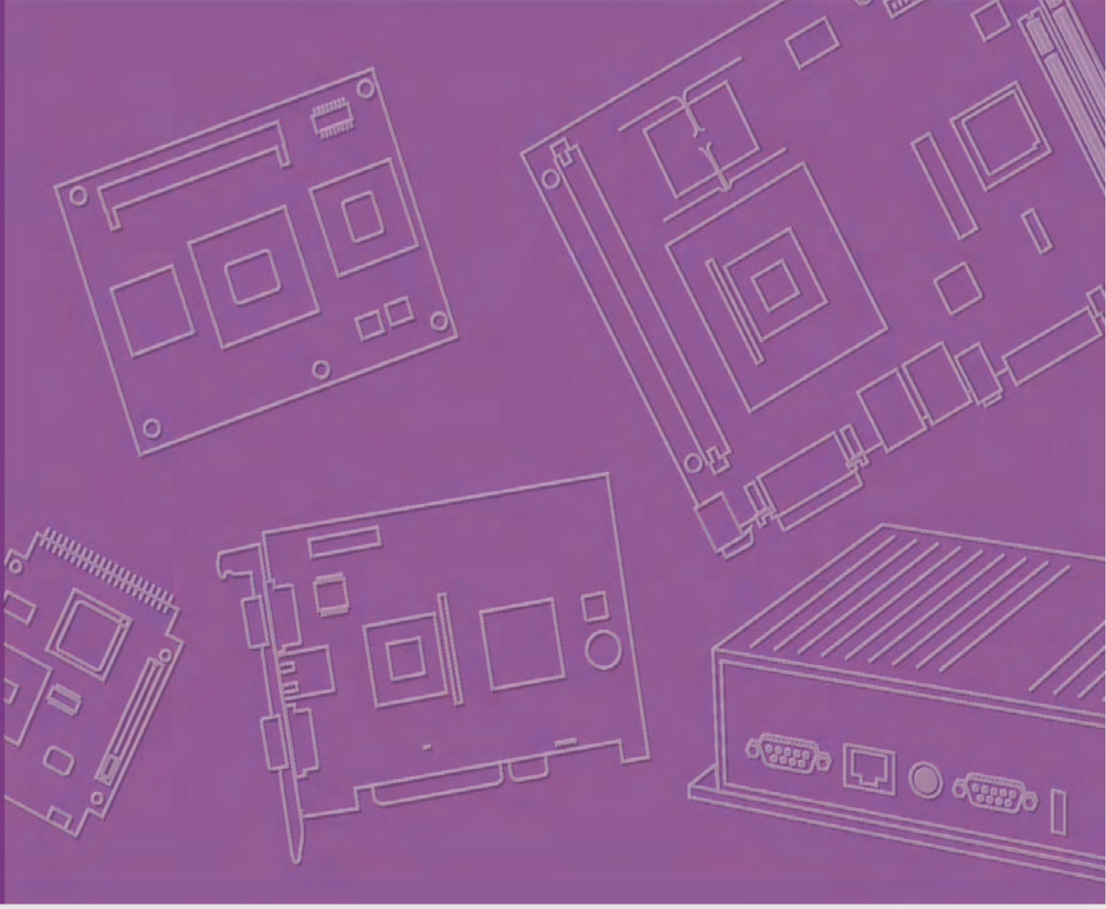
User Manual



AIMB-256

Socket P µFC-PGA 478
Intel® Core™ 2 Duo /
Intel Core™ Solo /
Intel Celeron® processor
800 MHz FSB
Industrial Mini-ITX Motherboard
with PCI/DDR2/Dual GbE

Trusted ePlatform Services

ADVANTECH

Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

Caution! The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

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Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance. Visit the Advantech website for FAQ, technical guide, BIOS updates, driver updates, and other information:

http://support.advantech.com.tw/Support/default.aspx

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x Intel GME965 Mini ITX Main board
- 1 x CD-ROM contains the followings:
  – User's manual (this manual in PDF file)
  – Driver CD
- 2 x COM cables (9-pin w/o bracket, 26 cm)
- 1 x IDE HDD cable (40-pin, 30 cm)
- 2 x SATA data cables
- 2 x SATA power cables
- 1 x I/O Shield
- 1 x Startup Manual

If any of the above items is damaged or missing, please contact your retailer.

Contents

Chapter 1

Production Introduction

This chapter describes the main board features and the new technologies it supports.

1.1 Before you Proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

Caution!

- *Unplug the power cord from the wall socket before touching any component.*
- *Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity*
- *Hold components by the edges to avoid touching the ICs on them.*
- *Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.*
- *Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.*

1.2 Motherboard Overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Refer to the chassis documentation before installing the motherboard.

Warning! *Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.*

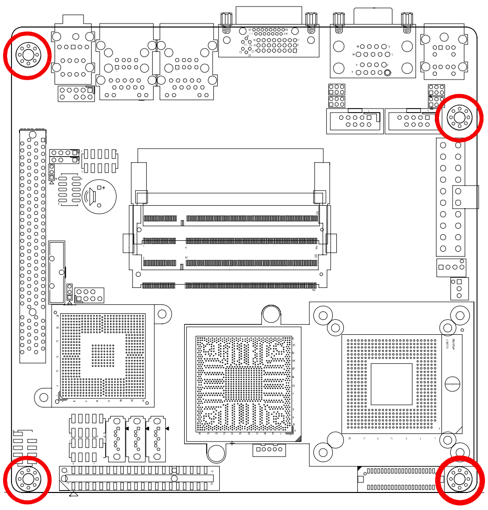
1.2.1 Placement Direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis.

1.2.2 Screw Holes

Place four (4) screws into the holes indicated by circles to secure the motherboard to the chassis.

Caution! *Do not over tighten the screws! Doing so can damage the motherboard.*



Place this side towards the rear of the chassis.

1.3 Motherboard Layout

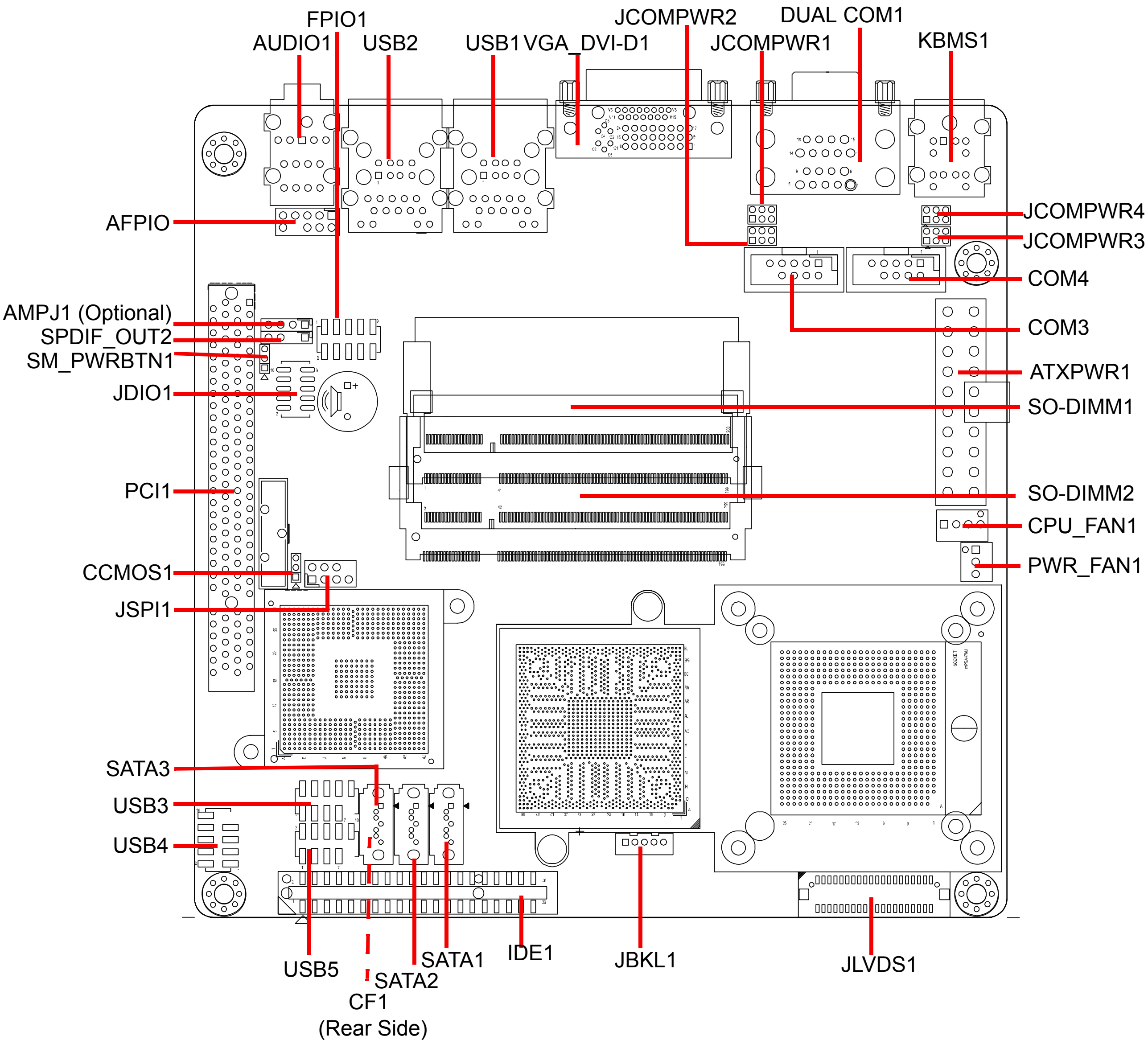


Figure 1.1 Motherboard Layout

1.3.1 Layout Content List

Table 1.1: Slots

Label	Function	Note	Page
CF1A	Compact Flash connector	(Rear side)	N/A
SO-DIMM1	200-pin SODIMM slot 1		13-16
SO-DIMM2	200-pin SODIMM slot 2		13-16
PCI1	PCI slot		16

Table 1.2: Jumpers

Label	Function	Note	Page
CCMOS1	Clear CMOS	3 x 1 header, pitch 2.00 mm	18
JCOMPWR1,2	COM 1, 2 RI/+5 V/+12 V selection	3 x 2 header, pitch 2.00 mm	19
JCOMPWR3,4	COM 3, 4 RI/+5 V/+12 V selection	3 x 2 header, pitch 2.00 mm	20
SM_PWRBTN1	SM power connector	3 x 1 header, pitch 2.00 mm	21

Table 1.3: Rear Panel Connector

Label	Function	Note	Page
KBMS1	PS/2 keyboard and mouse	6-pin Mini-Din	21
DUALCOM1	Serial port connector x 2	D-sub 9-pin, male	21
VGA_DVI-D1	VGA connector DVI connector	D-sub 15-pin, female	21
USB1	RJ-45 Ethernet connector x 1 USB connector x 2		22
USB2	RJ-45 Ethernet connector x 1 USB connector x 2	(Optional 2nd LAN)	22
AUDIO1	Line-in port, Line-out port, Microphone port	5.1 Channel Audio I/O (3 jacks)	22

Table 1.4: Internal Connector

Label	Function	Note	Page
AMPJ1 (Optional)	Amplifier connector	4 x 1 header, pitch 2.54 mm	23
ATXPWR1	ATX power connector	10 x 2 header	23
COM3	Serial port 3 connector	5 x 2 header, pitch 2.54 mm	24
COM4	Serial port 4 connector	5 x 2 header, pitch 2.54 mm	24
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54 mm	25
PWR_FAN1	Power fan connector	3 x 1 wafer, pitch 2.54 mm	25
FPIO1	System panel connector	5 x 2 header, pitch 2.54 mm	26
IDE1	Primary IDE connector	20 x 2 header, pitch 2.00 mm	27

Table 1.4: Internal Connector

JLVDS1	LVDS connector	HIROSE DF13S-40DP-1.25 V	27
JBKL1	LCD Inverter connector	5 x 1 header, pitch 2.00 mm	28
JDIO1	Digital I/O connector	5 x 2 header, pitch 2.00 mm	28
JSPI1	SPI connector	4 x 2 header, pitch 2.5 4mm	29
SPDIF_OUT2	Digital Audio connector	4 x 1 header, pitch 2.54 mm	29
SATA1,2,3	Serial ATA connectors 1,2,3 [black]	7-pin header	30
USB3	USB 2.0 connector	5 x 2 header, pitch 2.54 mm	30
USB4	USB 2.0 connector	5 x 2 header, pitch 2.54 mm	30
USB5	USB 2.0 connector	5 x 2 header, pitch 2.54 mm	30

1.4 Central Processing Unit (CPU)

The motherboard comes with a surface mount 478-pin socket designed for the Intel® 479P Core Duo / Core Solo / Core 2 Duo CPU with 65nm process.

Take note of the marked corner (with gold triangle) on the CPU. This mark should match a specific corner on the socket to ensure correct installation.



Note!

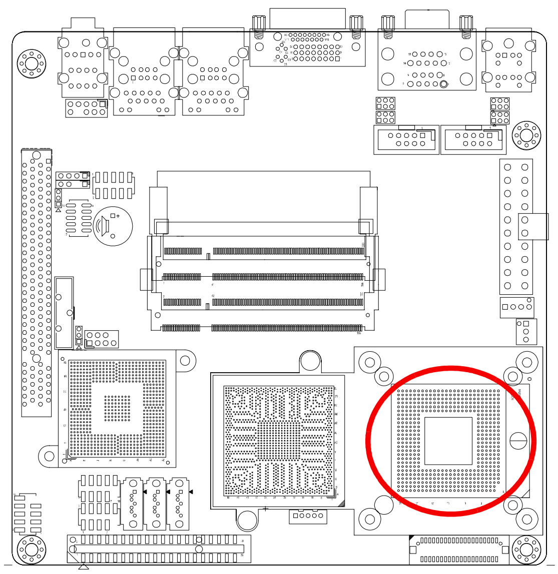
- *Make sure the AC power is off before you install the CPU.*
- *If installing a dual-core CPU, connect the CPU fan cable to the CPU_FAN1 connector to ensure system stability.*

Caution!

- *Your boxed Intel® socket 479P Core Duo / Core Solo / Core 2 Duo CPU with 65nm process package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.*
- *Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. Your place of purchase or local distributor will shoulder the cost of repair only if the damage is shipment/transit-related.*
- *Keep the cap after installing the motherboard. Your place of purchase or local distributor will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the socket.*
- *The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/ incorrect removal of the PnP cap.*

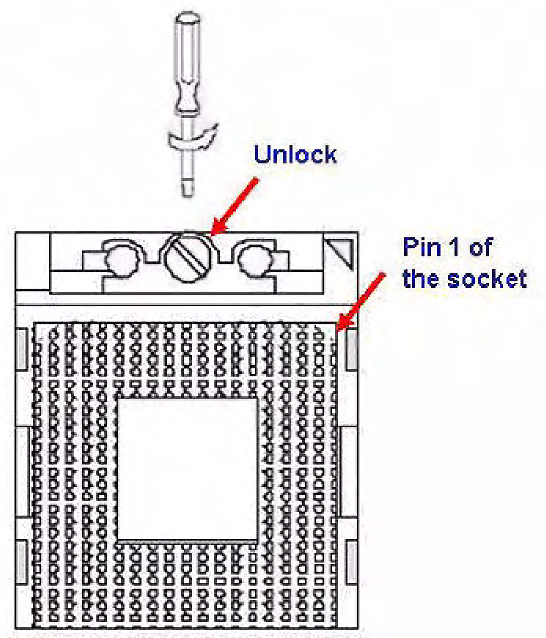
1.4.1 Installing the CPU

1. Locate the CPU socket on the motherboard.

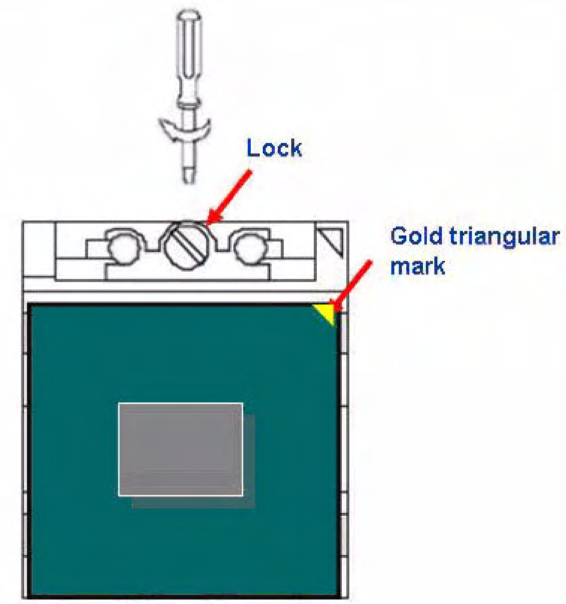


Note! *Before installing the CPU, make sure that the socket box is facing toward you.*

2. The processor socket comes with a screw to secure the processor; please unlock the screw first.



3. Position the CPU above the socket and the gold triangular mark on the CPU must align with pin 1 of the CPU socket.
4. Carefully insert the CPU into the socket until it fits in place.
5. Turn the screw to the lock position.



Warning! *The CPU fits in only one correct orientation. To prevent bending the connectors on the socket and damaging the CPU, DO NOT force the CPU into the socket.*

Warning! *After installation, make sure to plug-in the ATX power cable into the motherboard.*

1.4.2 Installing the CPU Heatsink and Fan

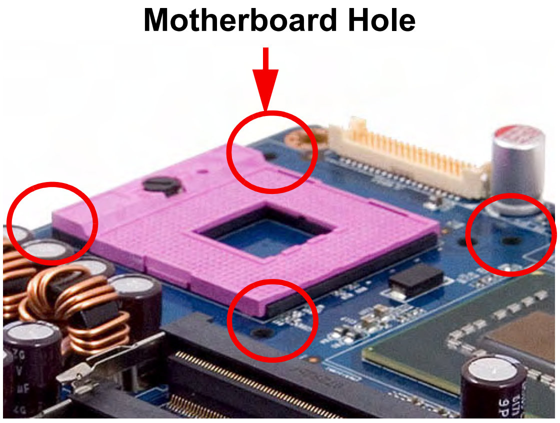
The Intel® socket 479P Core™ Duo / Core™ Solo / Core™ 2 Duo CPU processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

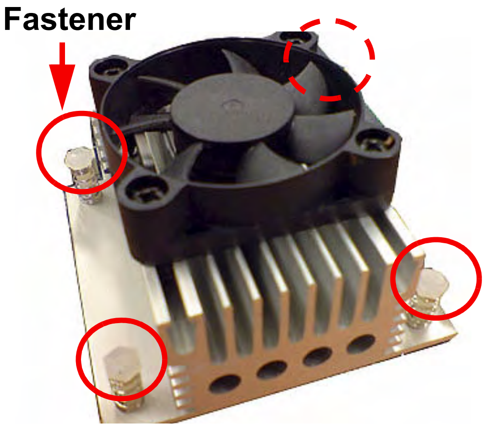
Note!

- *Install the motherboard to the chassis before you install the CPU fan and heatsink assembly.*
- *When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only an Intel® - certified multi - directional heatsink and fan.*

Caution! *If you purchased a separate CPU heatsink and fan assembly, make sure that you have properly applied Thermal Interface Material to the CPU heatsink or CPU before you install the heatsink and fan assembly.*

1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.

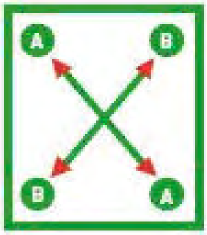


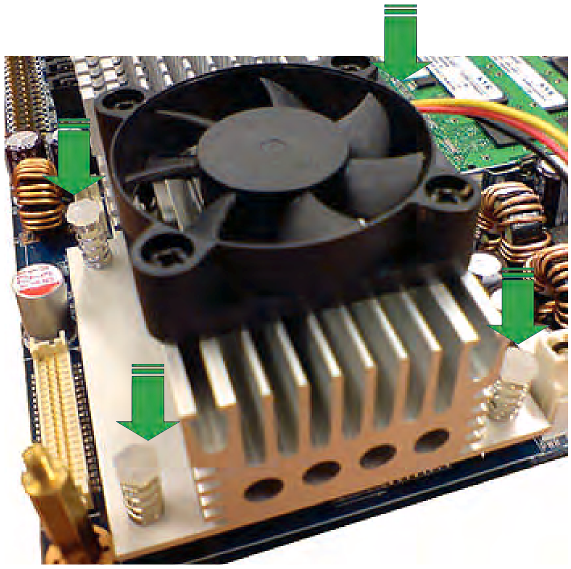


Note! *Orient the heatsink and fan assembly so that the CPU fan cable is closest to the CPU fan connector.*

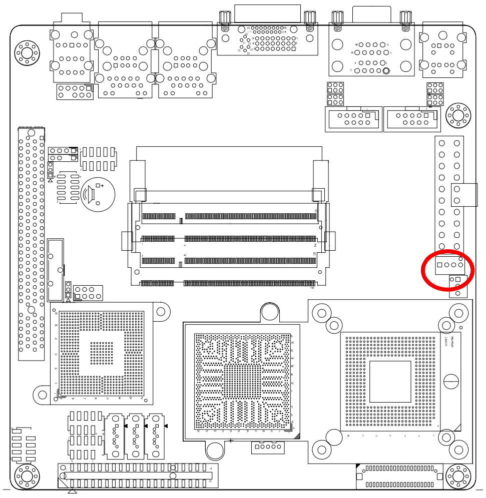
Note! *Make sure each fastener is oriented as shown, with the narrow groove directed outward.*

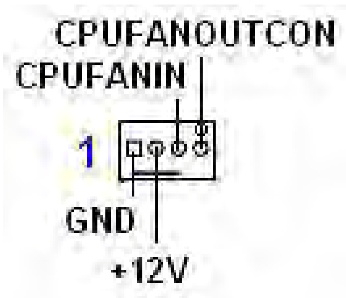
2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.





3. Connect the CPU fan cable to the connector on the motherboard labelled CPU_FAN1.



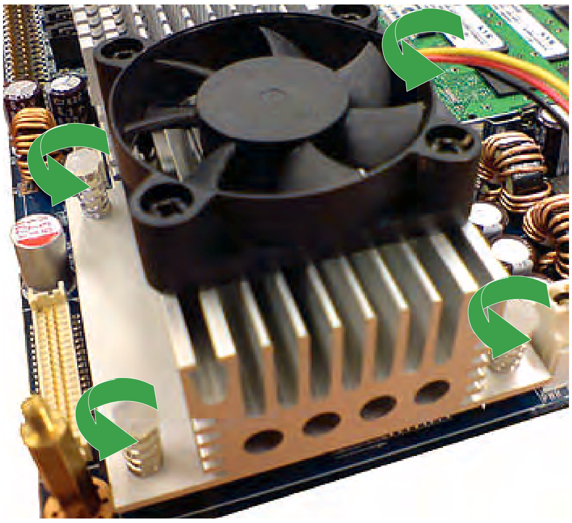


Caution!

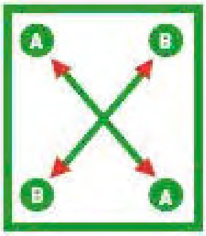
- *Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug in this connector.*
- *These are not jumpers! DO NOT place jumper caps on the fan connectors.*

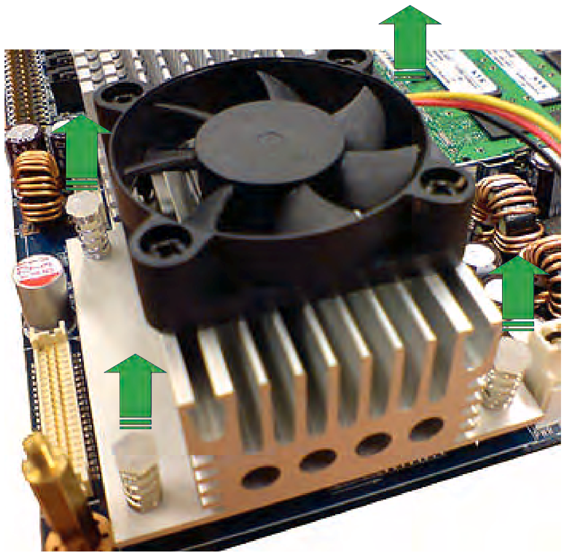
1.4.3 Uninstalling the CPU Heatsink and Fan

1. Disconnect the CPU fan cable from the connector on the mother-board.
2. Rotate each fastener counter-clockwise.

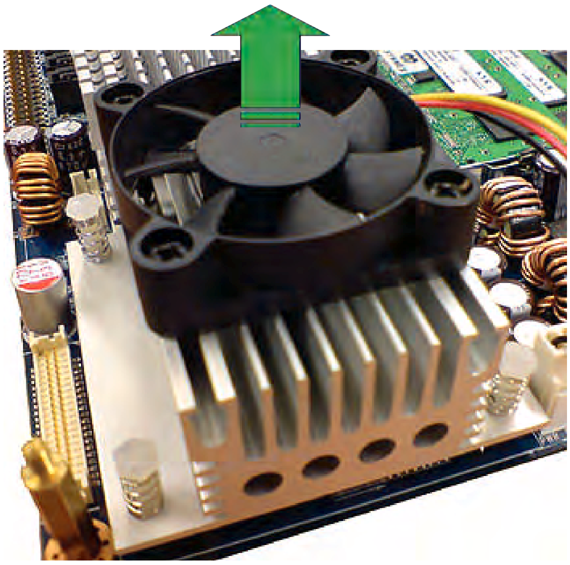


3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.





4. Carefully remove the heatsink and fan assembly from the motherboard.



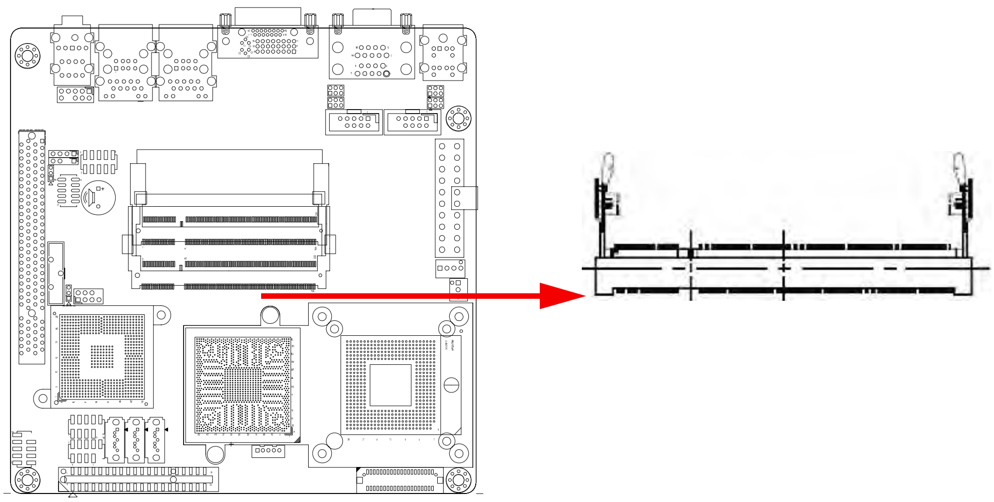
Note!  *Refer to the documentation in the boxed or stand-alone CPU fan package for detailed information on CPU fan installation.*

1.5 System Memory

1.5.1 DIMM Sockets Location

The motherboard comes with two 200-pin Double Data Rate 2 (DDR2) SODIMM sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 200-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket. The following figure illustrates the location of the sockets:



1.5.2 Memory Configurations

You can install 128 MB, 256 MB, 512 MB, 1GB and 2 GB DDR2 SDRAM DIMMs into the SODIMM sockets using the memory configurations in this section.

Note!

- *Installing DDR2 DIMM other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations.*
- *Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.*
- *Due to chipset resource allocation, the system may detect less than 1 GB system memory when you installed one 1 GB DDR2 memory modules.*
- *This motherboard does not support memory modules made up of 128 Mb chips or double-sided x16 memory modules.*
- *Make sure that the memory frequency matches the CPU FSB (Front Side Bus). Refer to the Memory frequency/CPU FSB synchronization table.*

Note!

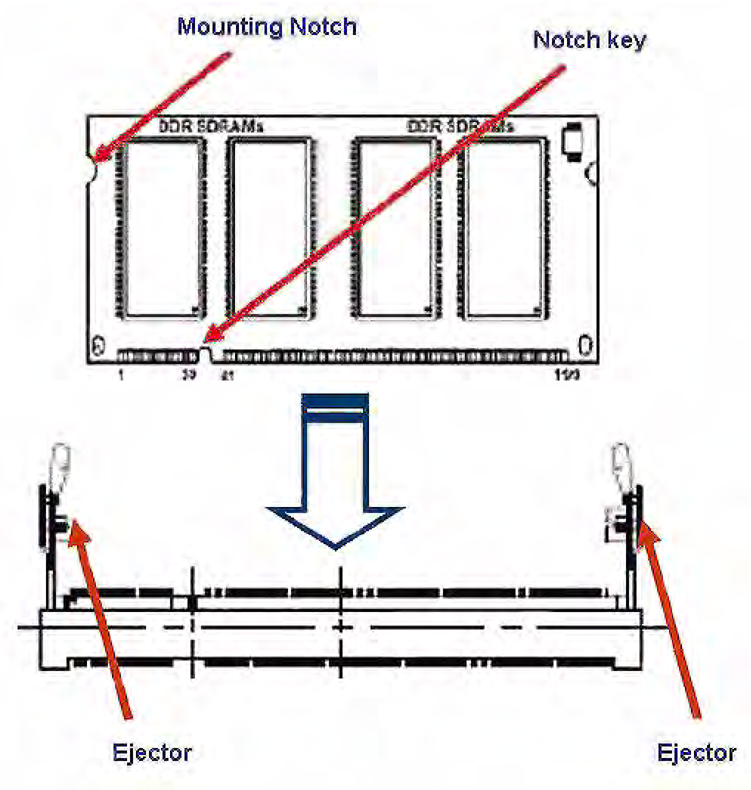
- Memory frequency/CPU FSB synchronization.

CPU FSB	DDR 2 DIMM Type	Memory Frequency
533/800 MHz	DDR2 533	Max clock Freq: 266 MHZ; 533 Mb/s
	DDR2 667	Max clock Freq: 333 MHZ; 667 Mb/s

1.5.3 Installing a DDR2 DIMM

Caution! *Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.*

1. Locate the DIMM socket on the board.
2. Hold two edges of the DIMM module carefully, and keep away of touching its connectors.
3. Align the notch key on the module with the rib on the slot.
4. Firmly pressing a module into the socket snaps it into the mounting notch and engages the ejectors. Do not force the DIMM module in with extra force as the DIMM module only fit in one direction.

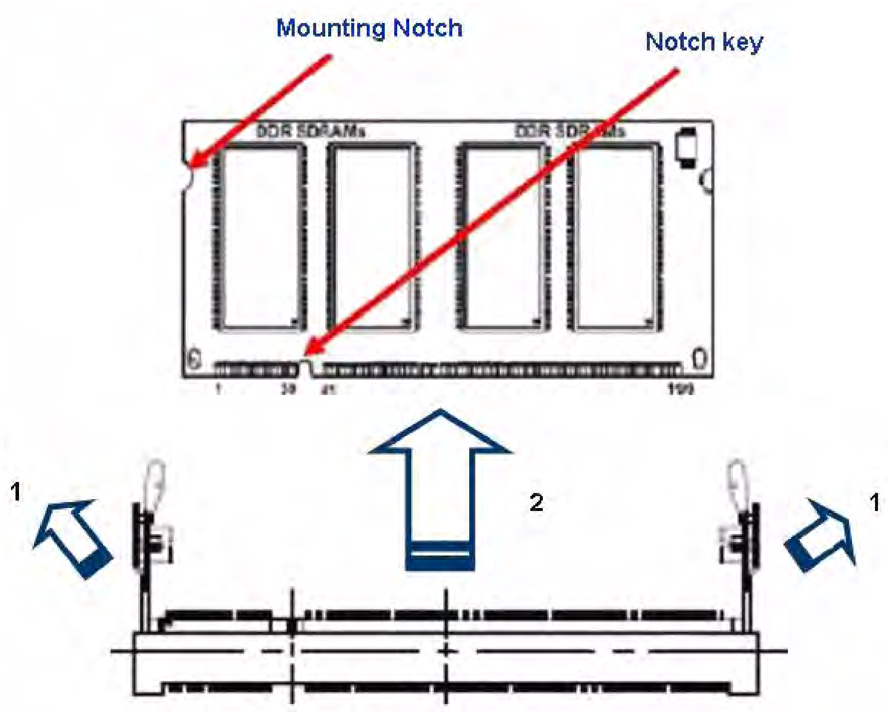


Caution!

- *A DDR2 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.*
- *The DDR2 DIMM sockets do not support DDR DIMMs. DO NOT install DDR DIMMs to the DDR2 DIMM socket.*

1.5.4 Removing a DDR2 DIMM

1. Press the two ejector tabs on the slot outward simultaneously, and then pull out the DIMM module.



Caution! *Support the DIMM lightly with your fingers when pressing the ejector tabs. The DIMM might get damaged if it flips out with extra force.*

1.6 Expansion Slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Warning! *Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.*

1.6.1 Installing an Expansion Card

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.6.2 Configuring an Expansion Card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings if any.
2. Assign an IRQ to the card if needed. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

1.6.3 Standard Interrupt Assignments

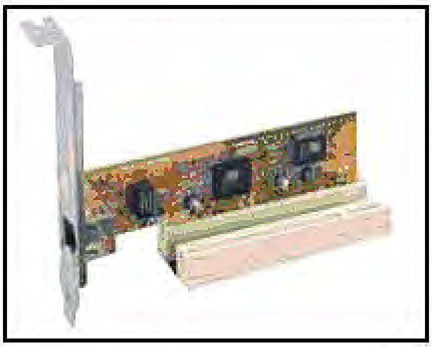
Table 1.5: Standard Interrupt Assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	-	Redirect to IRQ#9
3	11	IRQ holder for PCI steering*
4	12	Communications Port (COM1)*
5	13	IRQ holder for PCI steering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT)*
8	3	System CMOS/Rear Time
9	4	IRQ holder for PCI steering*
10	5	IRQ holder for PCI steering*
11	6	IRQ holder for PCI steering*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

* There IRQs are usually available for ISA or PCI device.

1.6.4 PCI Slot

AIMB-256 has one PCI slot. The PCI slot supports cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows a LAN card installed in a PCI slot.



1.7 Jumpers

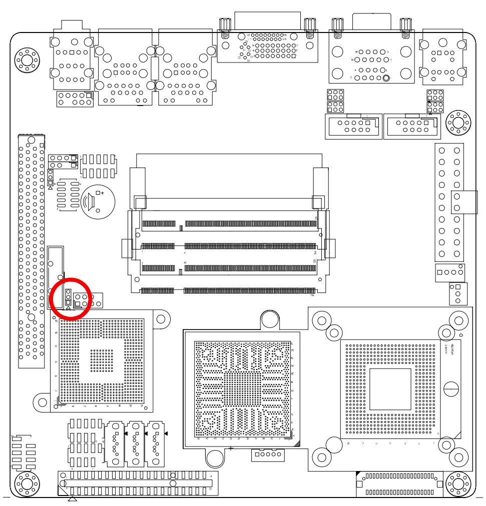
1.7.1 Clear CMOS (CCMOS1)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords. To erase the RTC RAM:

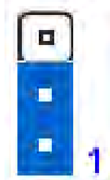
1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Caution! *Except when clearing the CMOS, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!*

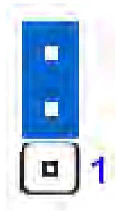




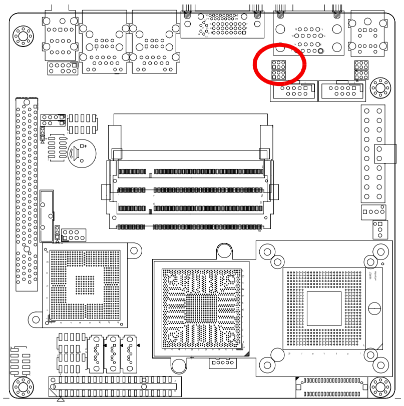
Normal (Default)

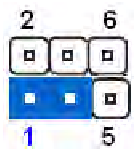
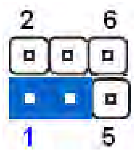
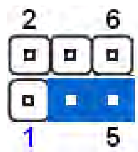
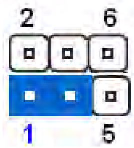
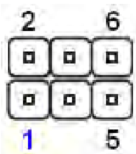
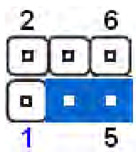


Clear RTC

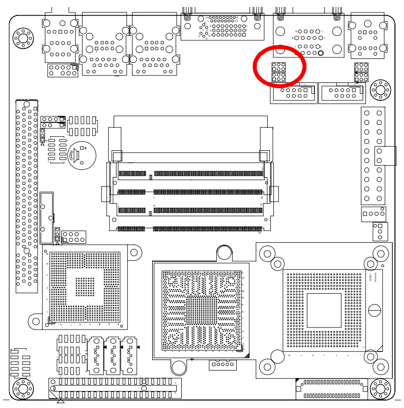


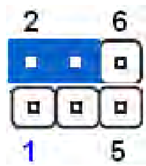
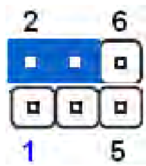
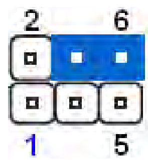
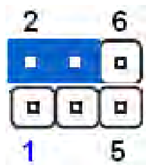
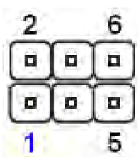
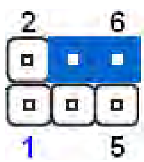
1.7.2 COM1 RI/+5 V/+12 V Selection (JCOMPWR1, JCOMPWR2)



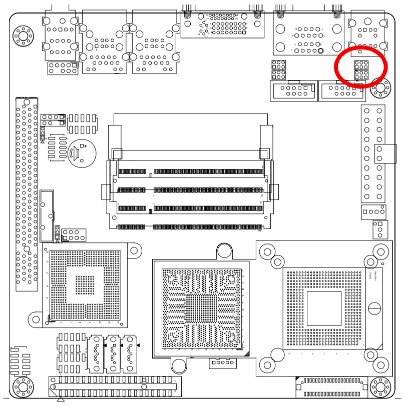
	JCOMPWR1		JCOMPWR2
+5 V (Default)		+	
+12 V		+	
Ring		+	

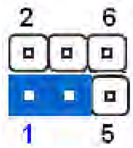
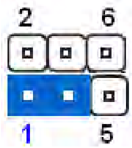
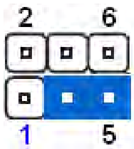
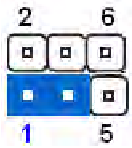
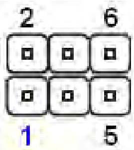
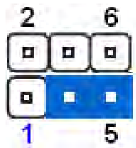
1.7.3 COM2 RI/+5 V/+12 V Selection (JCOMPWR1, JCOMPWR2)



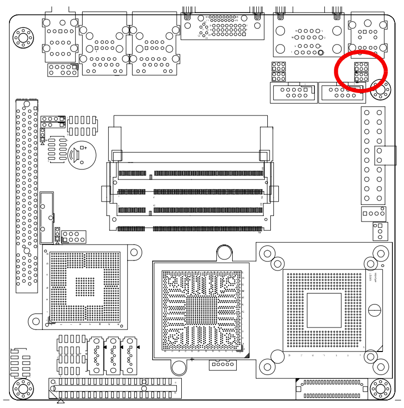
	JCOMPWR1		JCOMPWR2
+5 V (Default)		+	
+12 V		+	
Ring		+	

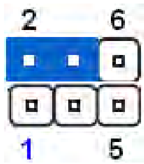
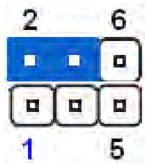
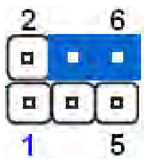
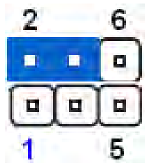
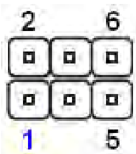
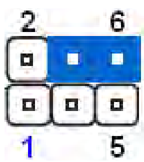
1.7.4 COM3 RI/+5 V/+12 V Selection (JCOMPWR3, JCOMPWR4)



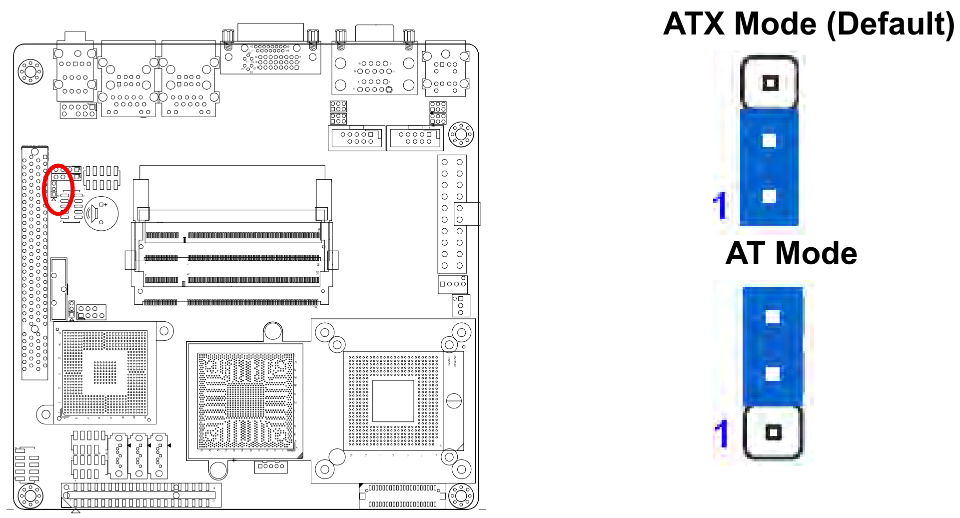
	JCOMPWR3		JCOMPWR4
+5 V (Default)		+	
+12 V		+	
Ring		+	

1.7.5 COM4 RI/+5 V/+12 V Selection (JCOMPWR3, JCOMPWR4)



	JCOMPWR3		JCOMPWR4
+5 V (Default)		+	
+12 V		+	
Ring		+	

1.7.6 SM Power Connector (SM_PWRBTN1)



1.8 Connectors

1.8.1 Rear Panel Connectors

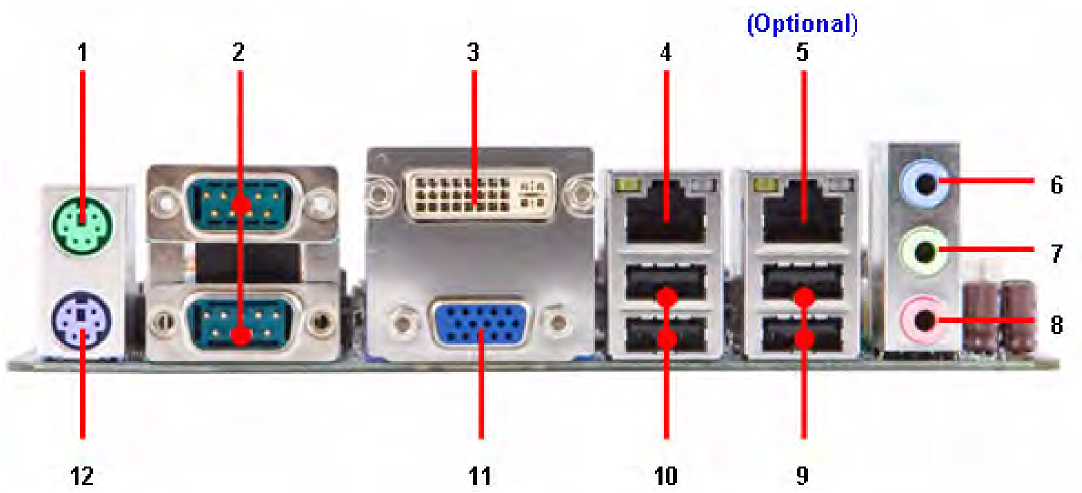


Table 1.6: Rear Panel Connectors

No	Label	Function	Description
1	KBMS1	PS/2 mouse connector	The standard PS/2 mouse DIN connector is for a PS/2 mouse.
2	DUALCOM1	Serial port connector x 2	D-sub 9-pin, male
3	VGA_DVI-D1	DVI port	

Table 1.6: Rear Panel Connectors

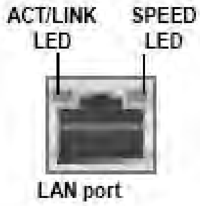
4,5	USB1, USB2	LAN (RJ-45) connector 	This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications. The optional 10/100 Mbps LAN controller allows 10/100 Mbps connection to a Local Area Network (LAN) through a network hub.

Table 1.7: LEDs

ACT / LINK LED		SPEED LED	
Status	**Description**	**Status**	**Description**
OFF	No link	OFF	10 Mbps connection
Orange	Linked	ORANGE	100 Mbps connection
Blinking	Data activity	GREEN	1 Gbps connection

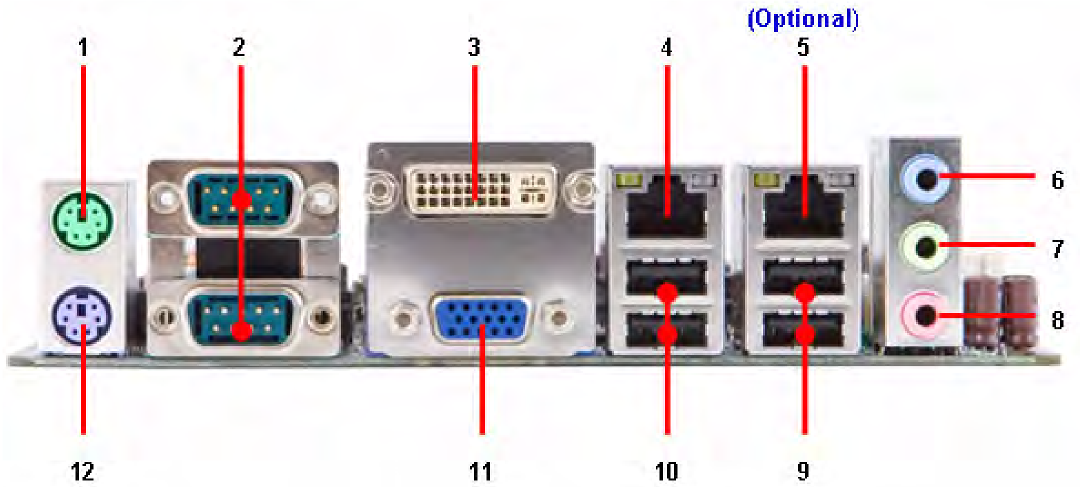
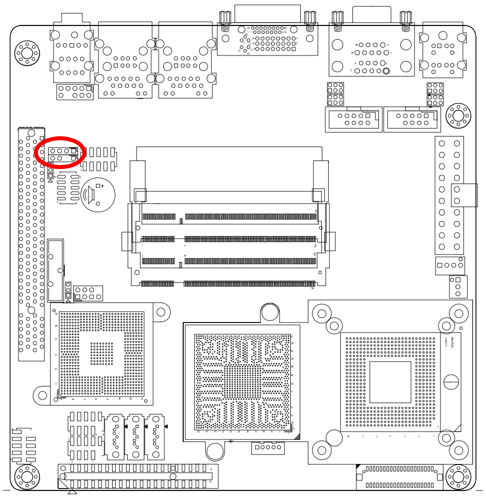
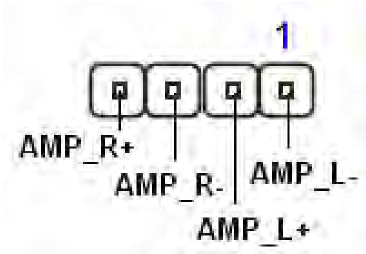


Table 1.8: Rear Panel Connectors

No	Label	Function	Description
6	AUDIO1	Line-In port (Light Blue).	This port connects a tape, CD, DVD player, or other audio sources.
7	AUDIO1	Line-Out port (Lime)	This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.
8	AUDIO1	Microphone port (Pink)	This port connects a microphone.
9,10	USB1, USB2	USB 2.0 connector	These four 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
11	VGA_DVI-D1	VGA port	This 15-pin port is for a VGA monitor or other VGA-compatible devices.
12	KBMS1	PS/2 KB connector	This port is for a PS/2 keyboard.

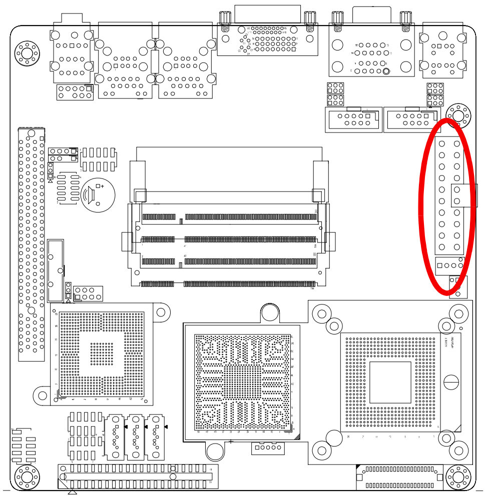
1.8.2 Amplifier Connector (AMPJ1) (Optional)

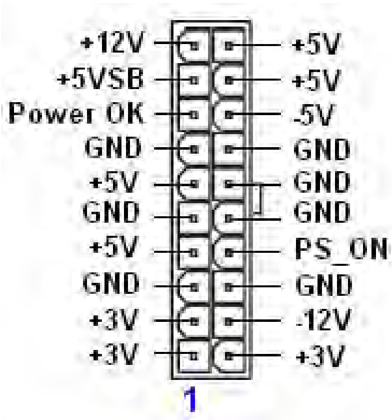




1.8.3 ATX Power Connector (ATXPWR1)

This connector is for an ATX Micro-Fit power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors mate completely.



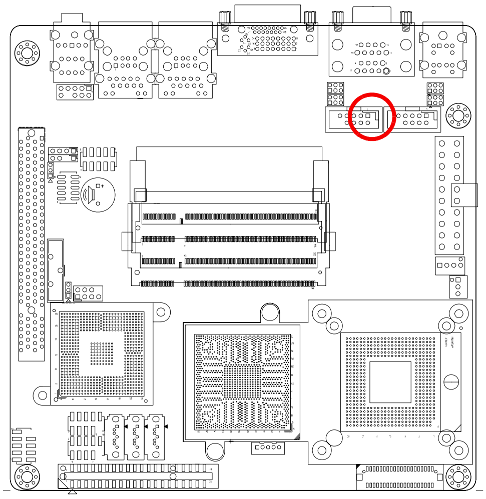


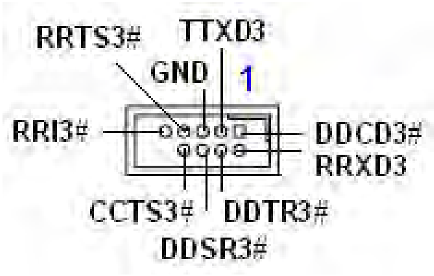
Important notes on the Motherboard Power Requirements

Note!

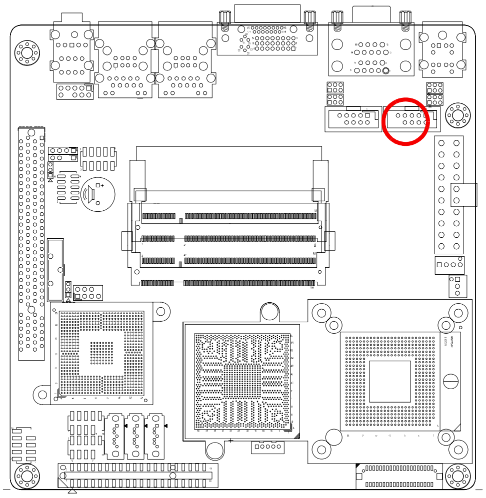
- *Make sure that your ATX 12 V power supply can provide 8A on the +12 V lead and at least 1A on the +5-volt standby lead (+5 VSB). The minimum recommended wattage is 230 W, or 300 W for a fully configured system. The system can become unstable and might experience difficulty powering up if the power supply is inadequate.*
- *You must install a PSU with a higher power rating if you intend to install additional devices.*

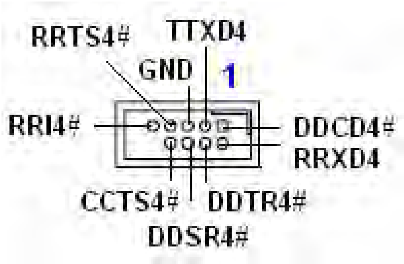
1.8.4 Serial Port 3 Connector (COM3)



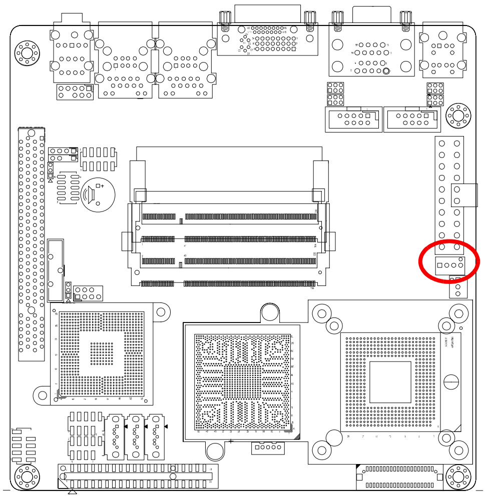


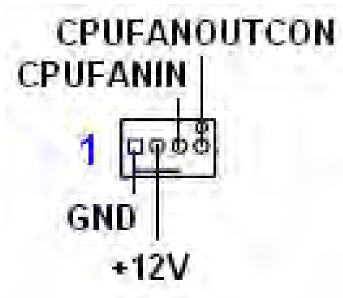
1.8.5 Serial Port 4 Connector (COM4)





1.8.6 CPU Fan Connector (CPU_FAN1)

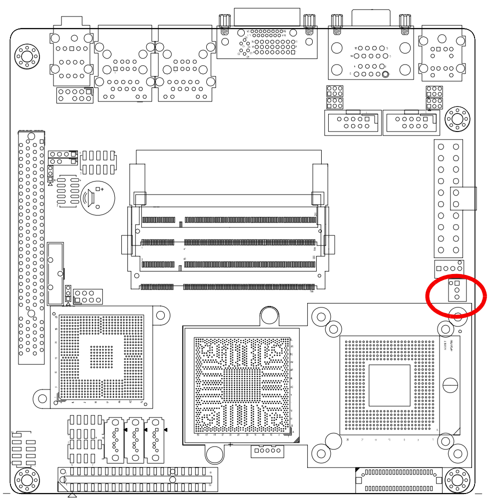




Caution!

- *Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.*
- *These are not jumpers! DO NOT place jumper caps on the fan connectors.*

1.8.7 Power Fan Connector (PWR_FAN1)



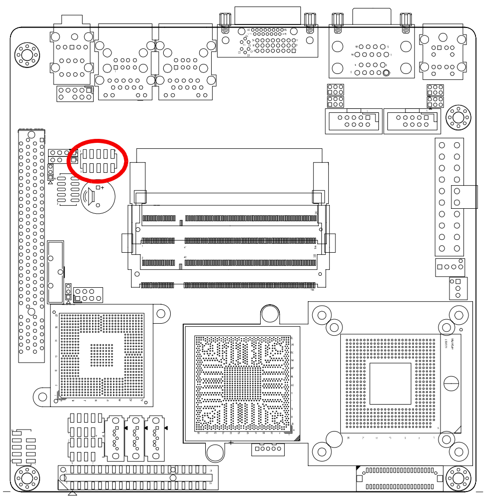


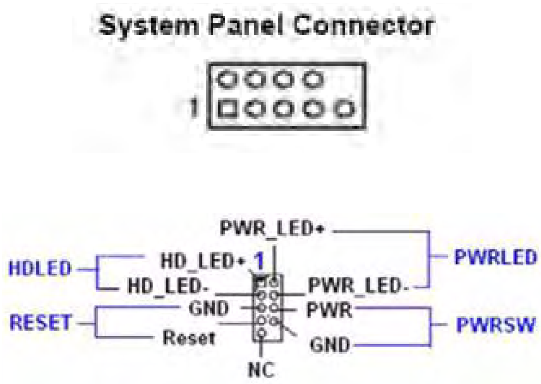
Caution!

- *Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.*
- *These are not jumpers! DO NOT place jumper caps on the fan connectors.*

1.8.8 System Panel Connector (FPIO1)

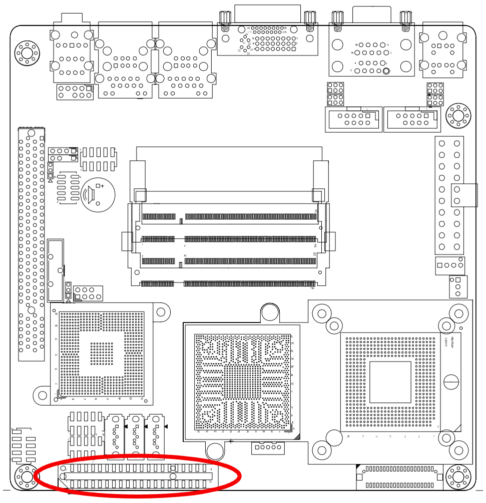
This connector supports several chassis-mounted functions.

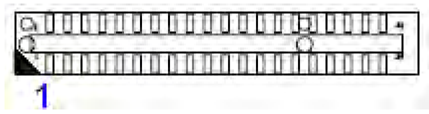




- **System Power LED (2-pin PWRLED)**
  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.
- **ATX Power Button/Soft-off Button (2-pin PWRSW)**
  This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Hard Disk Drive Activity LED (2-pin HDLED)**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.
- **Reset Button (2-pin RESET)**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

1.8.9 Primary IDE Connector (IDE1)

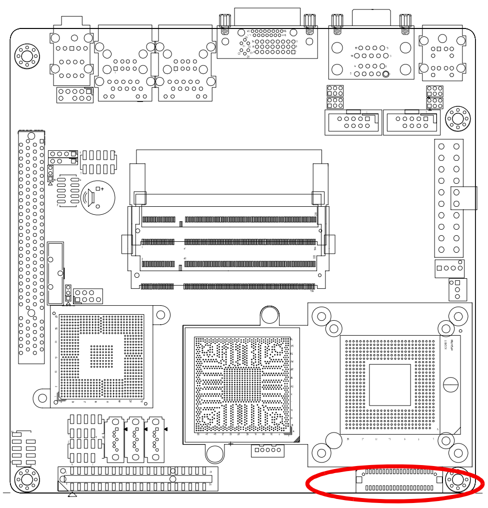


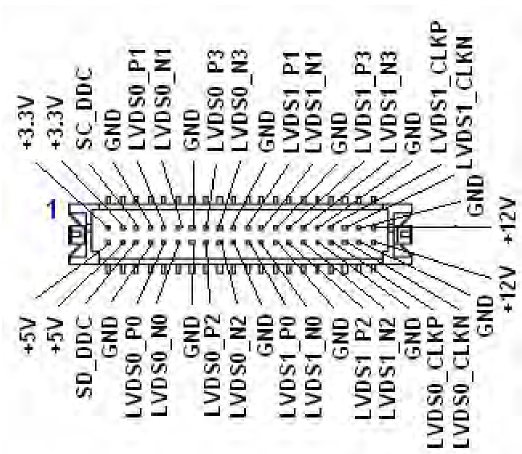


Note! ■ Orient the red markings (usually zigzag) on the IDE cable to Pin 1.

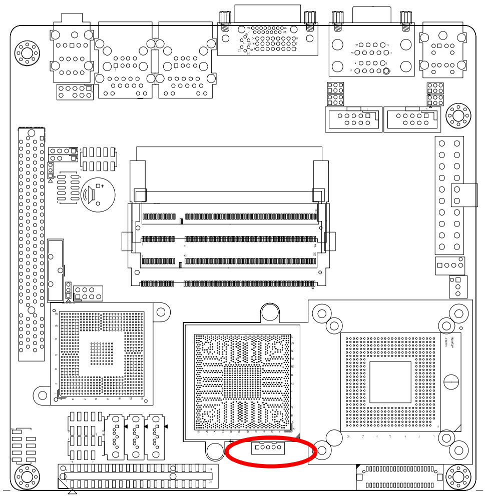
Caution! ■ Please DO NOT use IDE1 and SATA2 at the same time. This is an incompatible conflict.

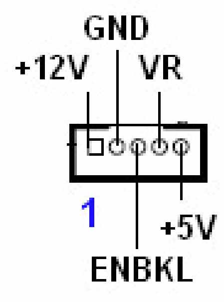
1.8.10 LVDS Connector (JLVDS1)





1.8.11 LCD Inverter Connector (JBKL1)



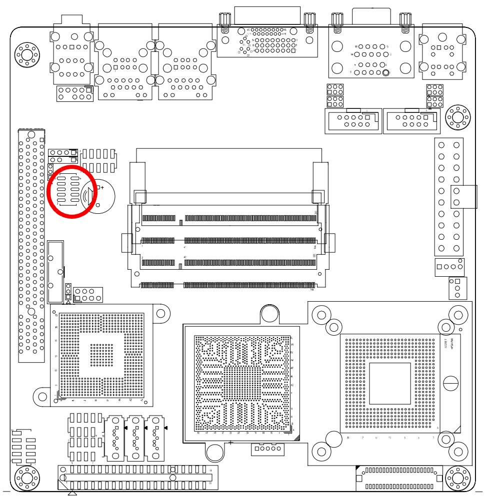


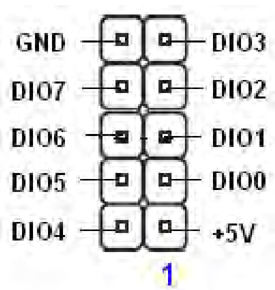
Note! 

- Signal Description

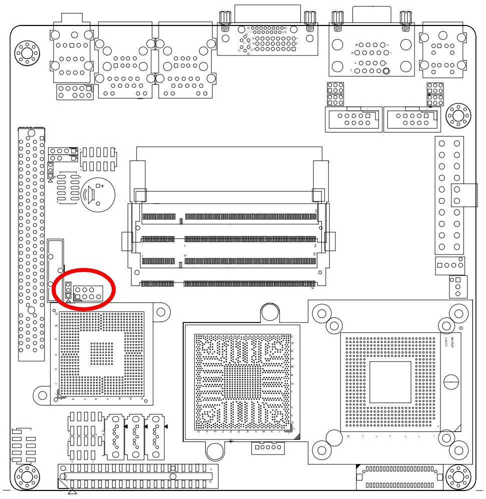
Signal	Signal Description
VR	Bright adjust. Vadj=0.75 V ~ 4.25 V (Recommended: 4.7K Ω, > 1/16 W)
ENBKL	LCD backlight ON/OFF control signal

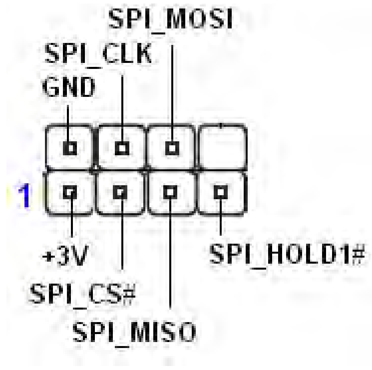
1.8.12 Digital I/O Connector (JDIO1)





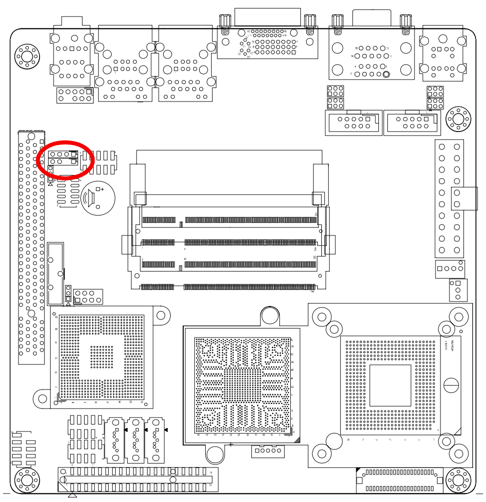
1.8.13 SPI Connector (JSPI1)

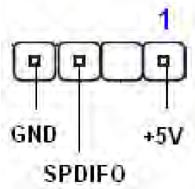




1.8.14 Digital Audio Connector (SPDIF_OUT2)

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF module cable to this connector, then install the module to a slot opening at the back of the system chassis.

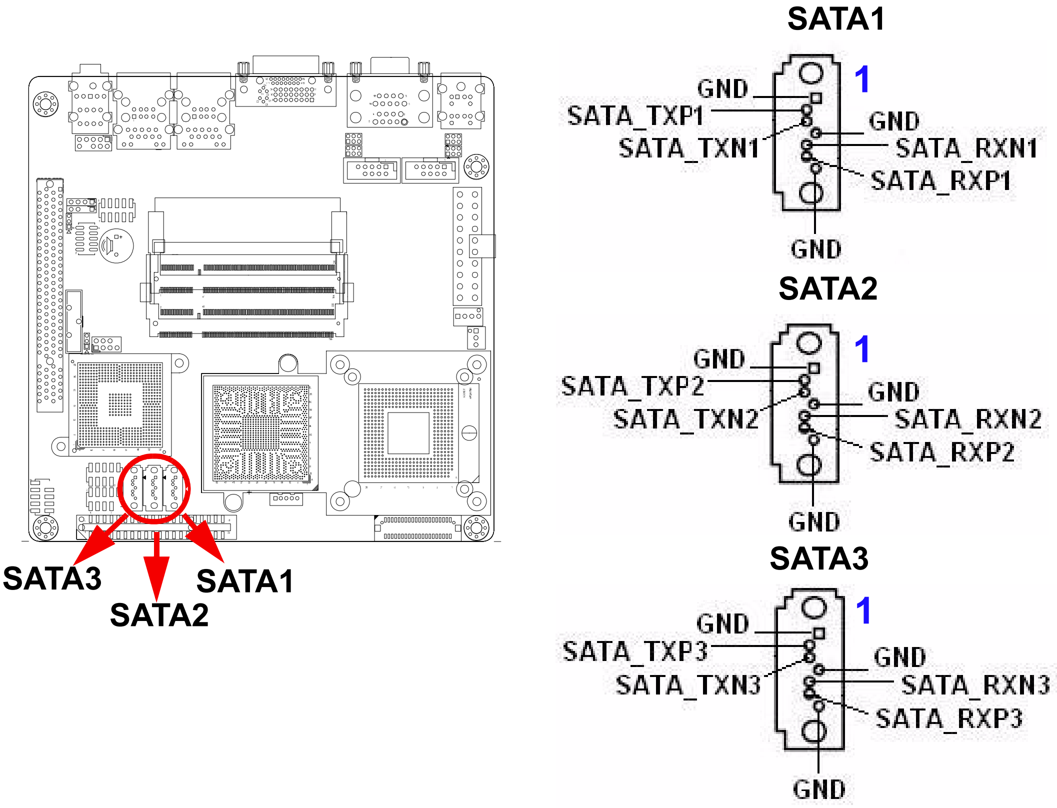






Note! *The S/PDIF module is purchased separately.*

1.8.15 Serial SATA Connector [Black] (SATA1, SATA2, SATA3)



Note!

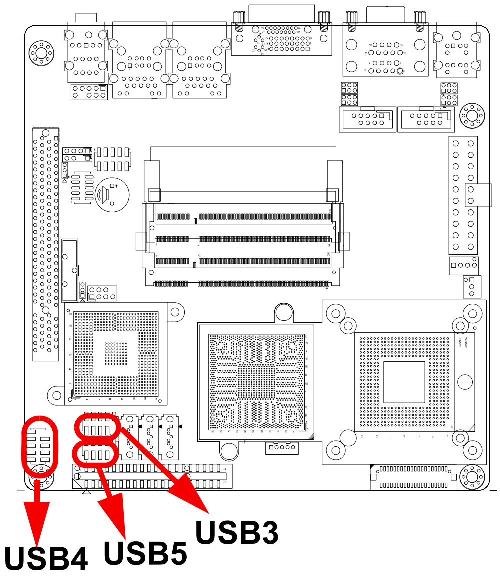
- *Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA.*
- *When using the connectors in Standard IDE mode, connect the primary (boot) hard disk drive to the SATA1 connector.*

Caution!

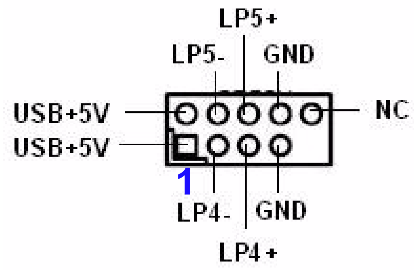
- *Please DO NOT use IDE1 and SATA2 at the same time. This is an incompatible conflict.*

1.8.16 USB 2.0 Connector (USB3, USB4, USB5)

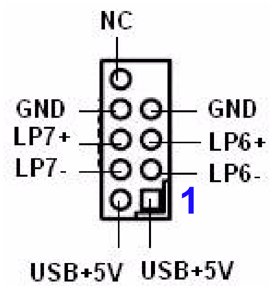
These connectors are for USB 2.0 ports. Connect the USB/GAME module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.



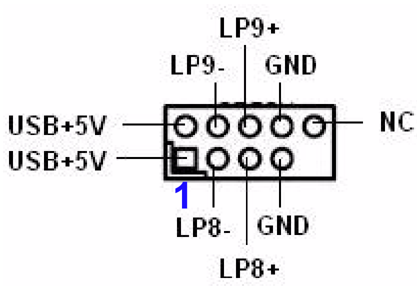
USB3



USB4



USB3



Caution! *Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!*



Note! *The USB module is purchased separately.*



Chapter 2

BIOS Setup

This chapter tells how to change the system settings through the BIOS setup menus. Detailed descriptions of the BIOS parameters are also provided.

2.1 BIOS Setup Program

This motherboard supports a programmable firmware chip that you can update using the provided utility. Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to “Run Setup”. This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the firmware hub.

The firmware hub on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On-Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

Note!

- *The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the Load Optimized Defaults from the BIOS menu screen.*
- *The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.*
- *Visit the system builder’s website to download the latest BIOS file for this motherboard*

2.1.1 Legend Box

The keys in the legend bar Allows you to navigate through the various setup menus

Key(s)	Function Description
←	Select Screen
↑ ↓	Select Item
+ -	Change Option / Field
Enter	Go to Sub Screen
PGDN	Next Page
PGUP	Previous Page
HOME	Go to Top of Screen
END	Go to Bottom of Screen
F2/F3	Change Colors
F7	Discard Changes
F8	Load Failsafe Defaults
F9	Load Optimal Defaults
F10	Save and Exit
ESC	Exit

2.1.2 List Box

This box appears only in the opening screen. The box displays an initial list of configurable items in the menu you selected.

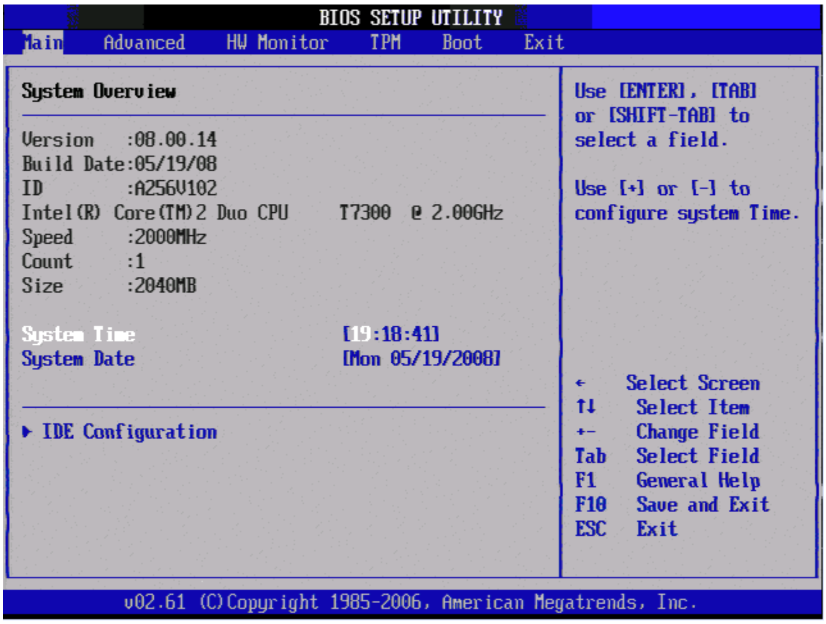
2.1.3 Sub-menu

Note that a right pointer symbol （→） appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>. The sub-menu appears. Use the legend keys to enter values and move from field to field within a sub-menu as you would within a menu. Use the <Esc> key to return to the main menu.

Take some time to familiarize yourself with the legend keys and their corresponding functions. Practice navigating through the various menus and submenus. If you accidentally make unwanted changes to any of the fields, press <F6> to load the fail-safe default values. While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field.

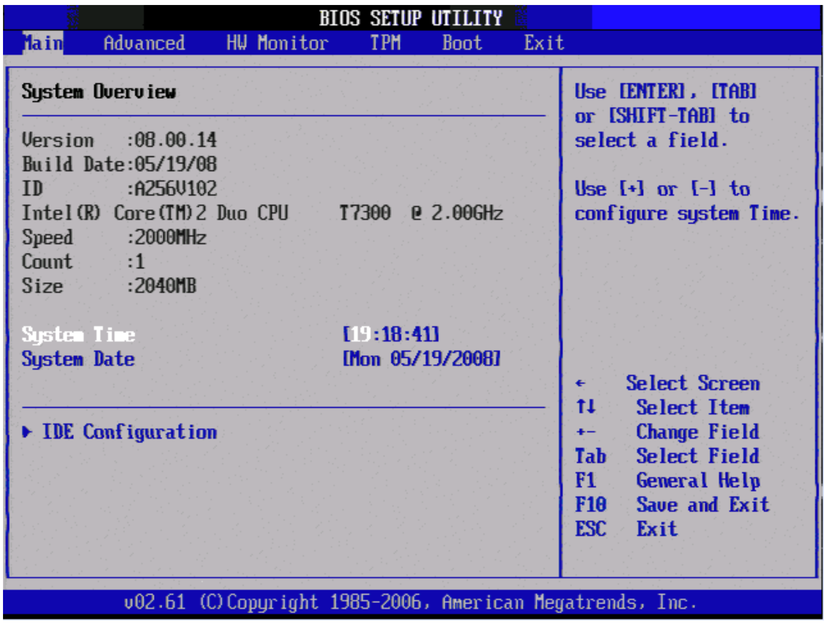
2.2 BIOS Menu Screen

When you enter the BIOS, the following screen appears. The BIOS menu screen displays the items that Allows you to make changes to the system configuration. To access the menu items, press the up/down/right/left arrow key on the keyboard until the desired item is highlighted, then press [Enter] to open the specific menu.



2.2.1 Main

Use this menu for basic system configurations, such as time, date etc.



2.2.1.1 System Overview

These items show the firmware and hardware specifications of your system. Read only.

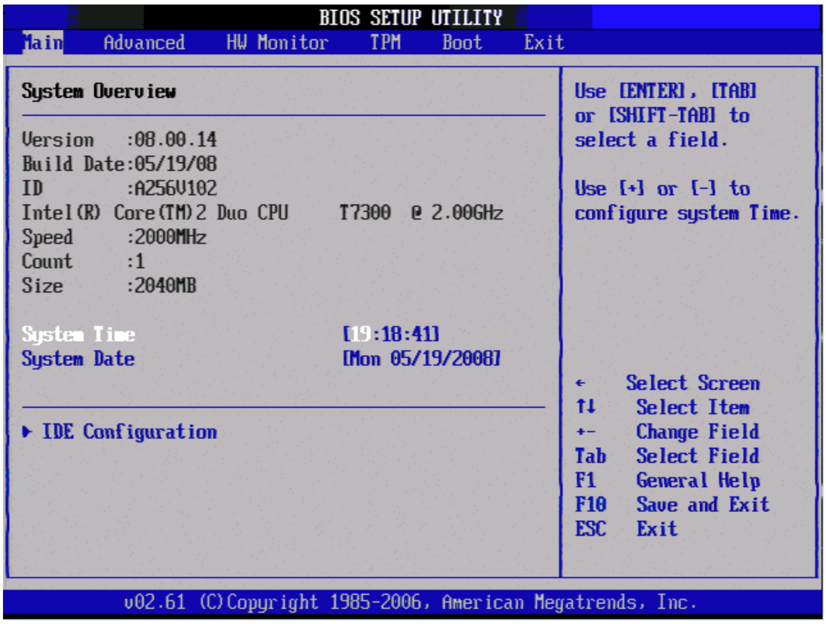
2.2.1.2 System Time

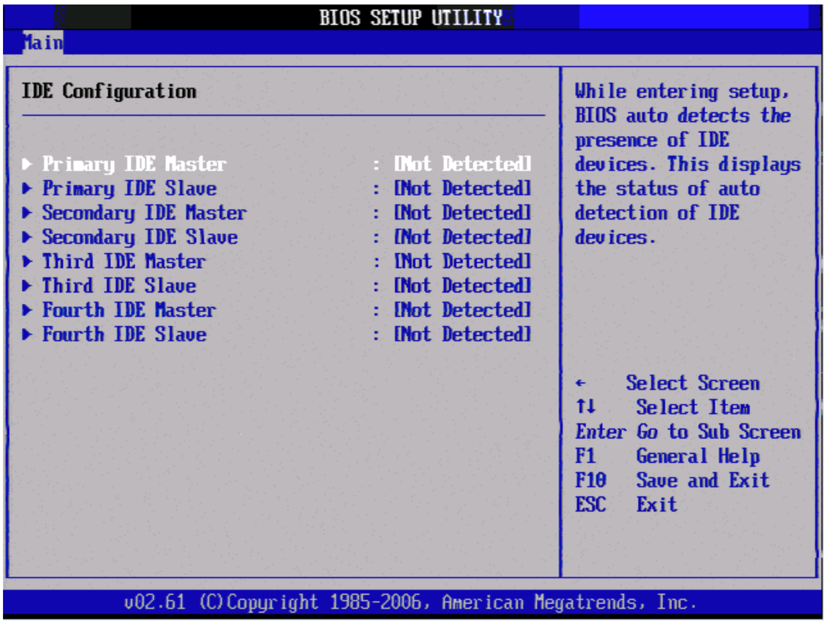
The time format is <Hour> <Minute> <Second>.

2.2.1.3 System Date

The date format is <Day>, <Month> <Date> <Year>.

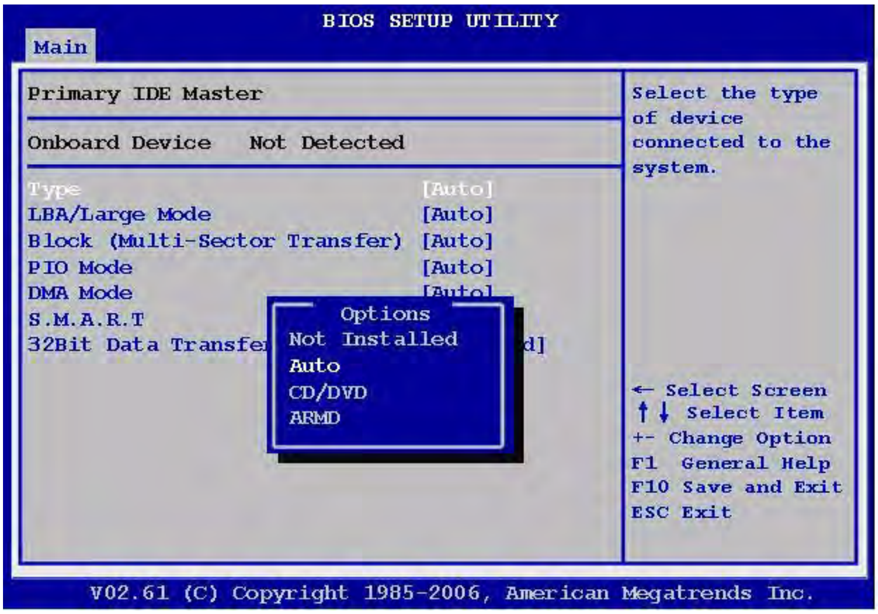
2.2.1.4 IDE Configuration





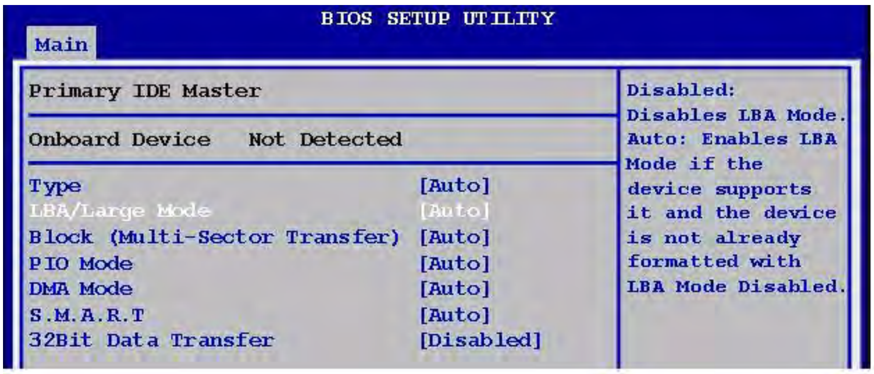
- Type

  Select the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device either is ZIP, LS-120, or MO drive. The options: [Not Installed], [Auto], [CD/DVD], [ARMD].

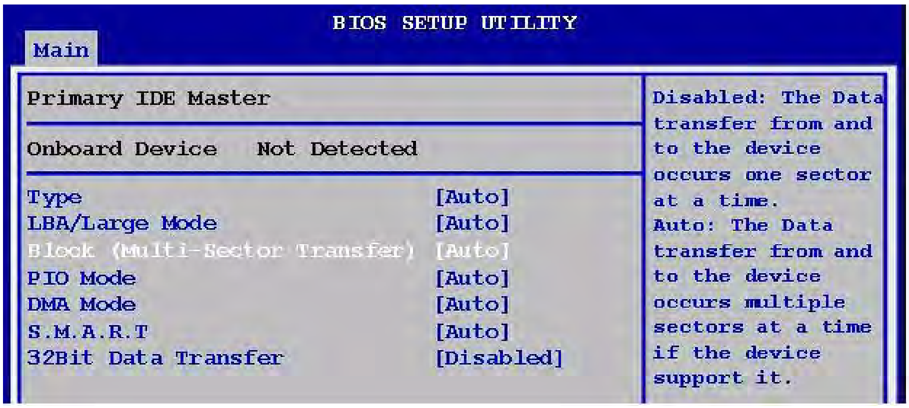


- LBA/Large Mode

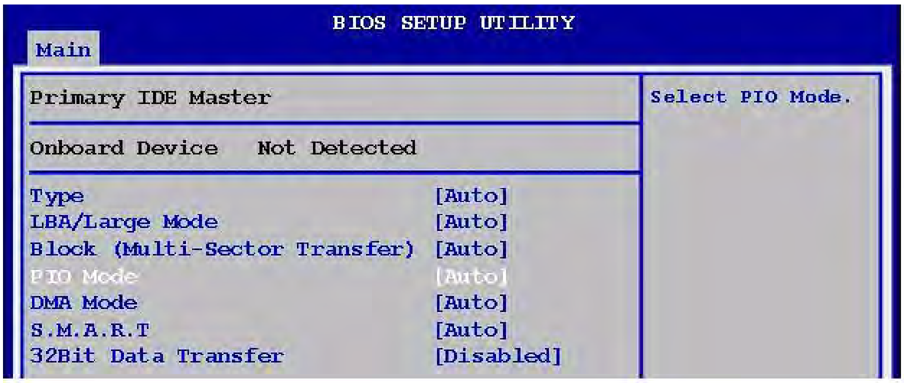
  Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors. The options: [Disabled], [Auto].



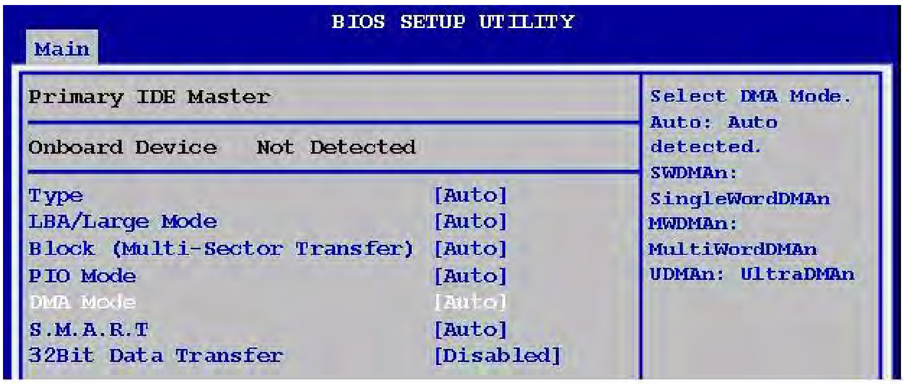
- Block (Multi-Sector Transfer)
  Controls enabling of multi-sector transfer, if supported.
  The options: [Disabled], [Auto].



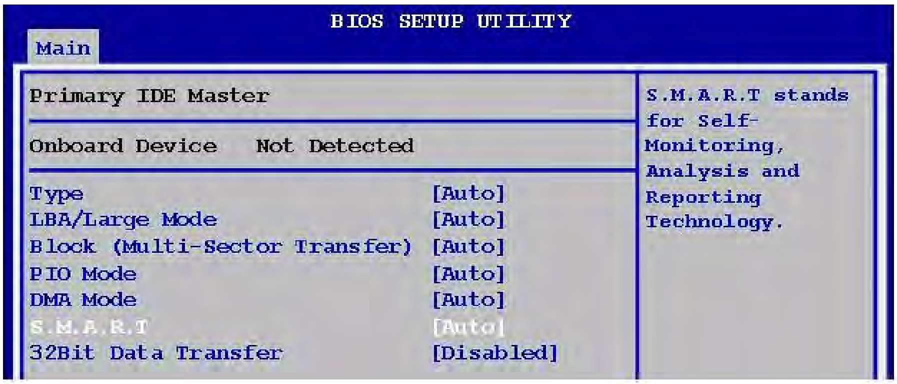
- PIO Mode
  Indicates the type of PIO (Programmed Input/Output).



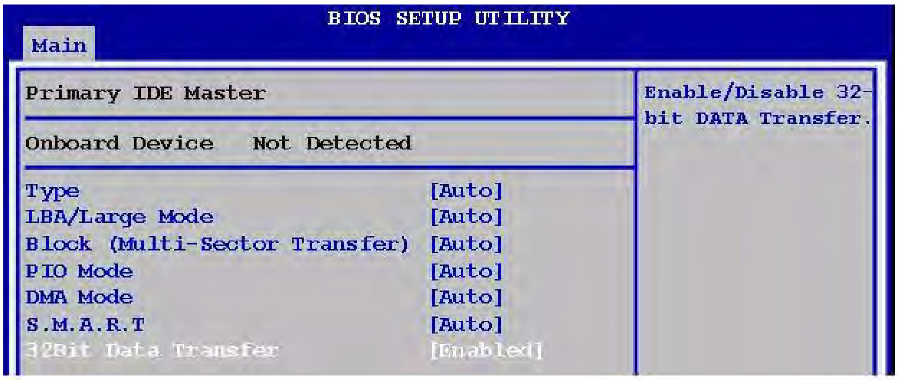
- DMA Mode
  Indicate the type of Ultra DMA.
  The options: [Auto], [SWDMAn], [MWDMAn], [UDMAn].



- S.M.A.R.T
  This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

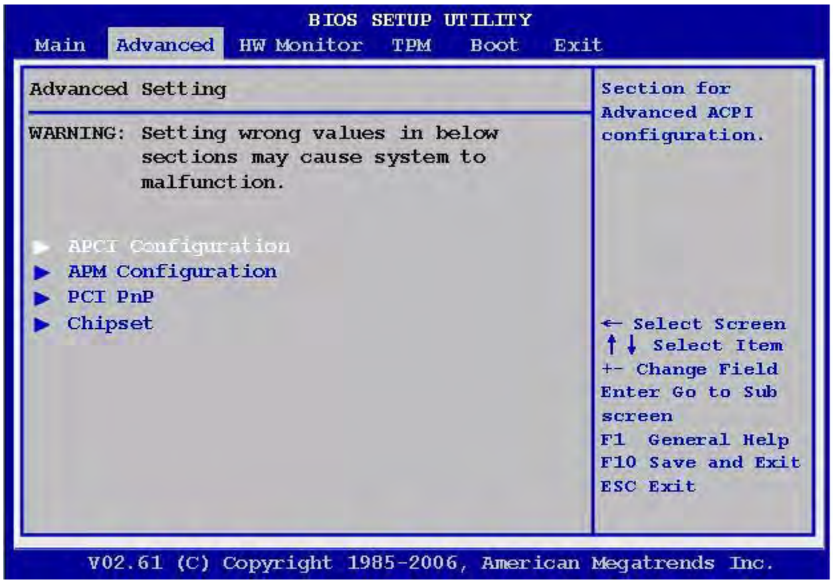


- 32Bit Data Transfer
  Enable 32-bit communication between CPU and IDE card.
  The options: [Enabled], [Disabled].



2.2.2 Advanced

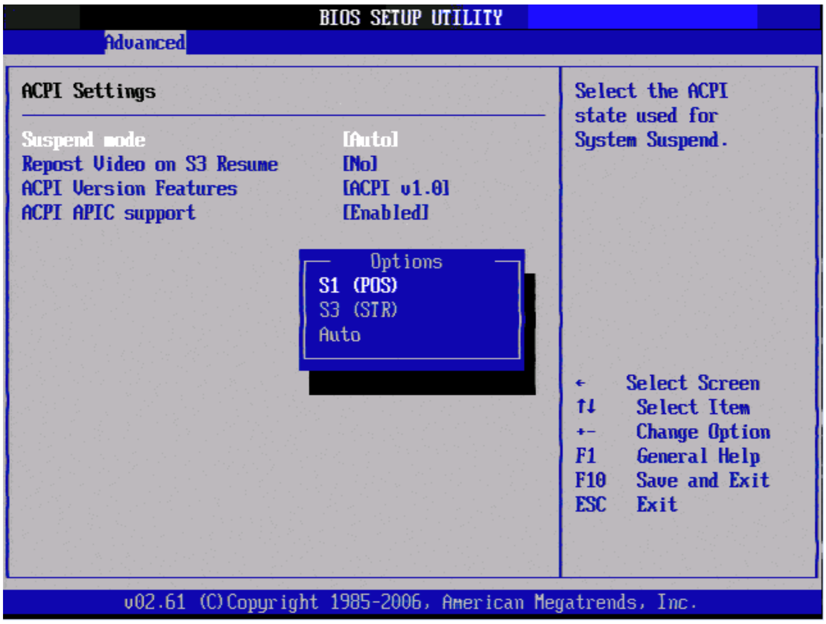
Use this menu to set up the items of special enhanced features.



2.2.2.1 APCI Configurations

- Suspend Mode

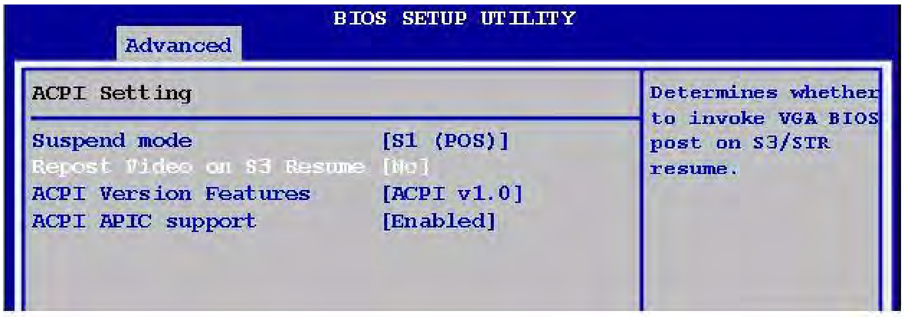
  This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field.



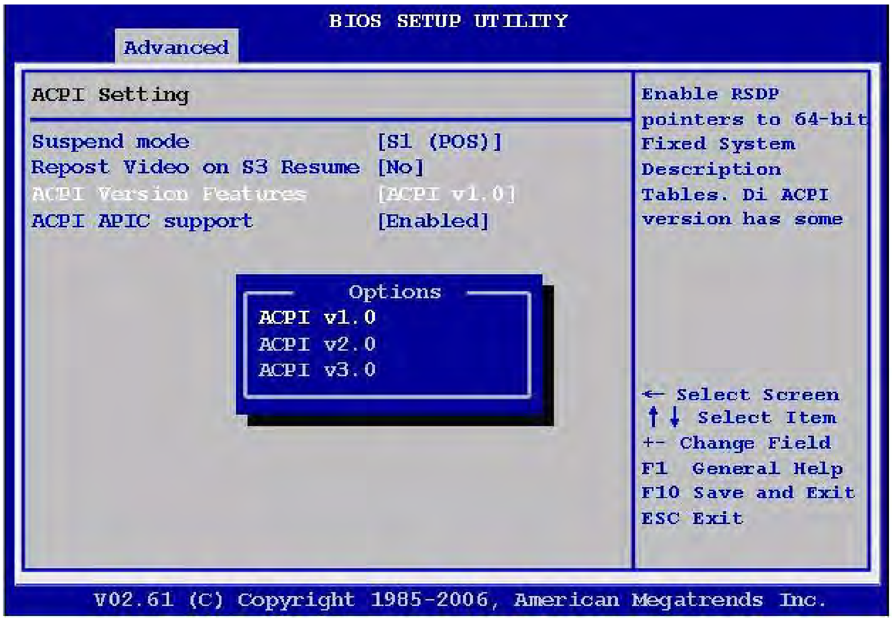
These options:

[S1 (POS)]	The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system contexts.
[S3 (STR)]	The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

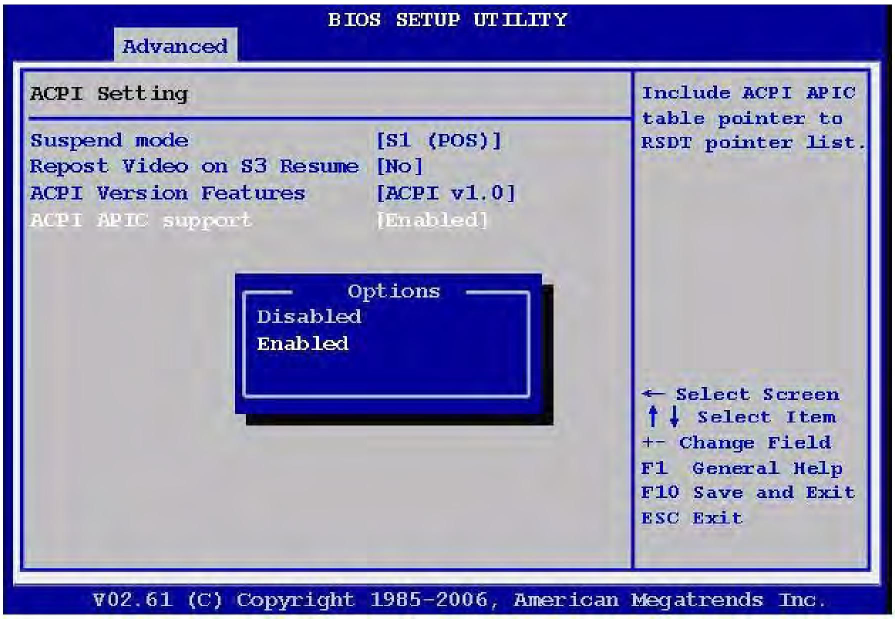
- Repost Video on S3 Resume
  Determine whether to invoke VGA BIOS post on S3/STR resume.
  The options: [No], [Yes].



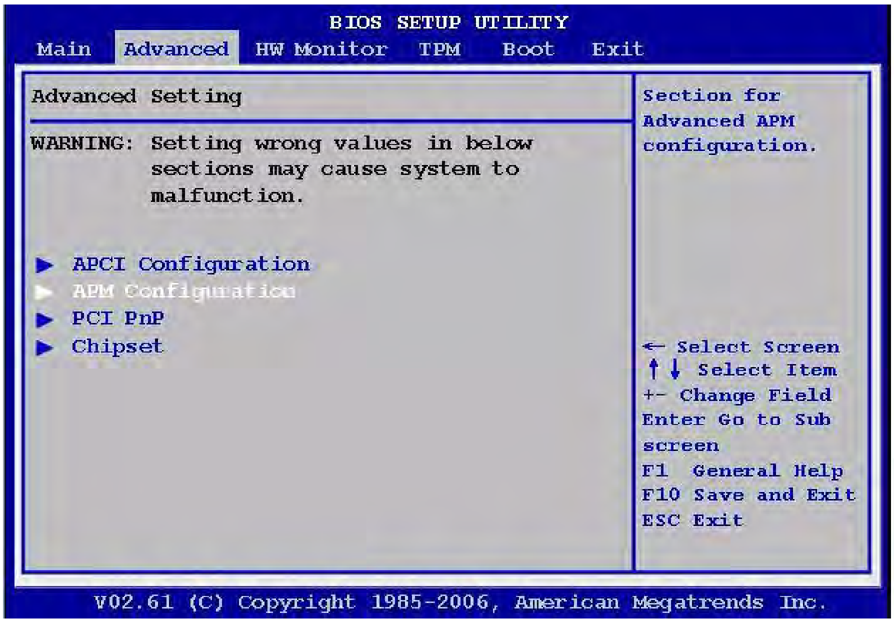
- ACPI Version Features
  Allows adding more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications.
  The options: [ACPI V1.0], [ACPI V2.0], [ACPI V3.0].



- ACPI APIC Support
  Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APCI table pointer is included in the RSDT pointer list. The options: [Disabled], [Enabled].

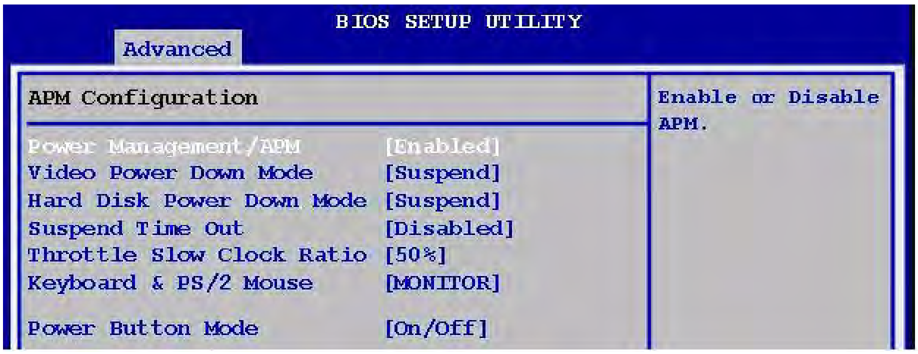


2.2.2.2 APM Configuration (Reserved)

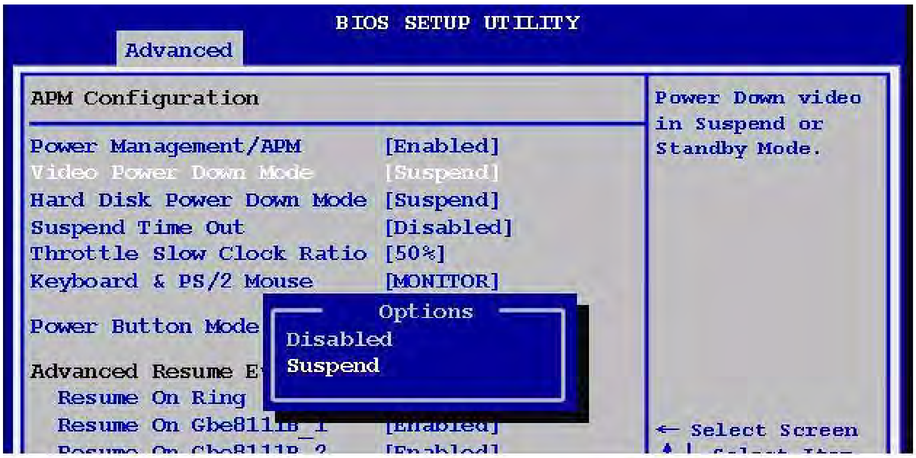


Warning! *You may not use the APM Configuration Function; some APM functions may be limited by the hardware and software environment.*

- Power Management/APM
  Supports more compatible feature for APM. Setting to [Enabled] will activate an Advanced Power Management (APM) device to enhance Max Saving mode and stop the CPU internal clock.



- Video Power Down Mode
  Power down video in suspend or standby mode.
  The options: [Disabled], [Suspend].

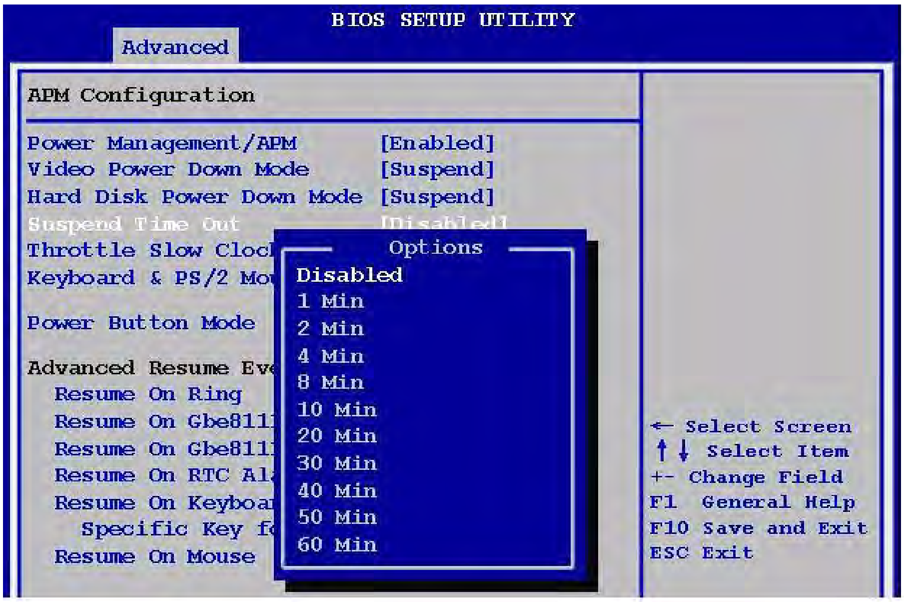


- Hard Disk Power Down Mode
  Power down Hard Disk in suspend or standby mode.
  The options: [Disabled], [Suspend].



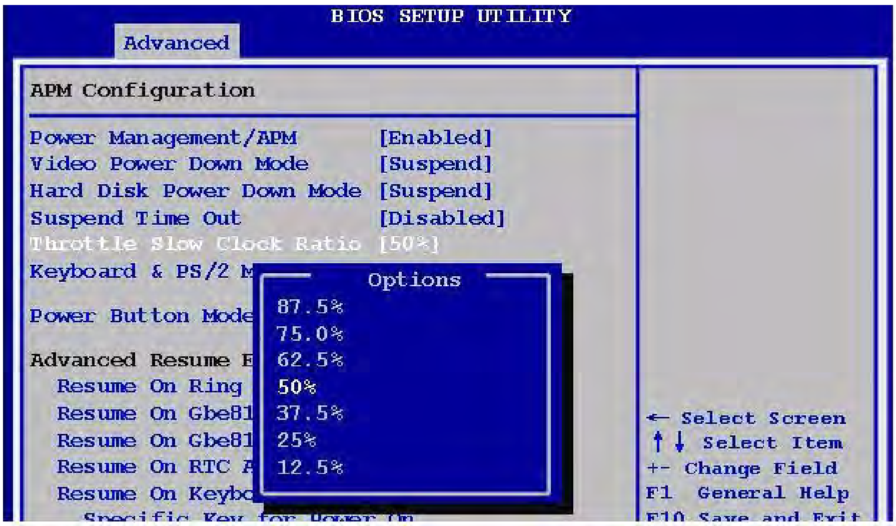
- Suspend Time Out

The options: [Disabled], [1 Min], [2 Min], [4 Min], [8 Min], [10 Min], [20 Min], [30 Min], [40 Min], [50 Min], [60 Min].



- Throttle Slow Clock Ratio

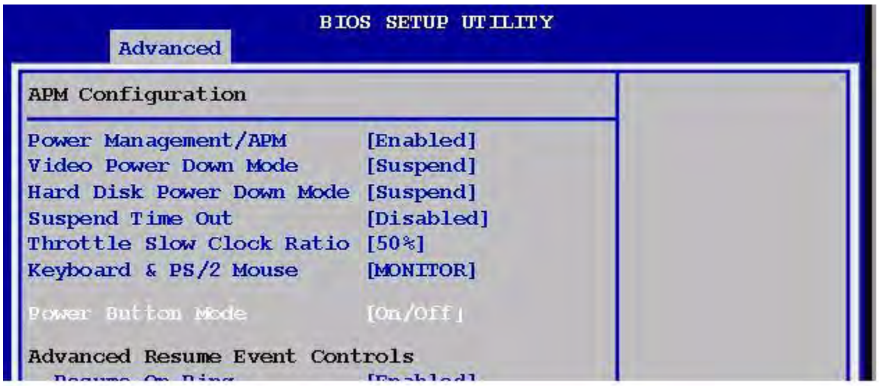
The options: [87.5%], [75.0%], [62.5%], [50%], [37.5%], [25%], [12.5%].



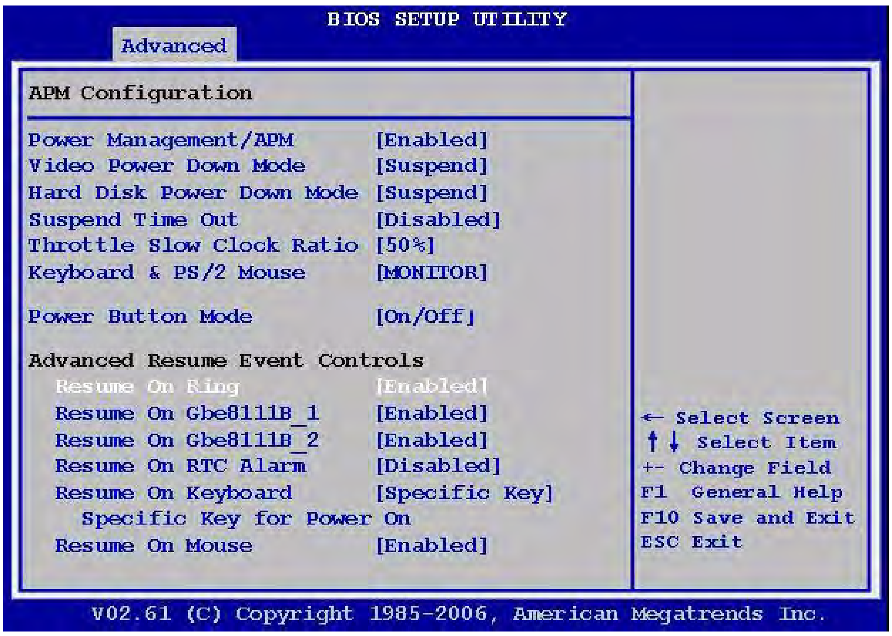
- Keyboard & PS/2 Mouse
  The options: [IGNORE], [MONITOR].



- Power Button Mode
  This setting controls the operation of the power button.



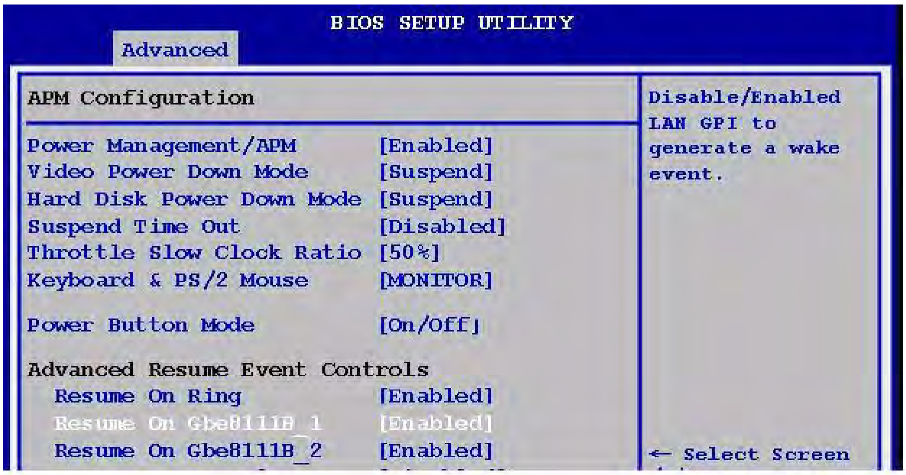
- Resume On Ring
  The options: [Enabled], [Disabled].



- Resume On Gbe8111B_1/2

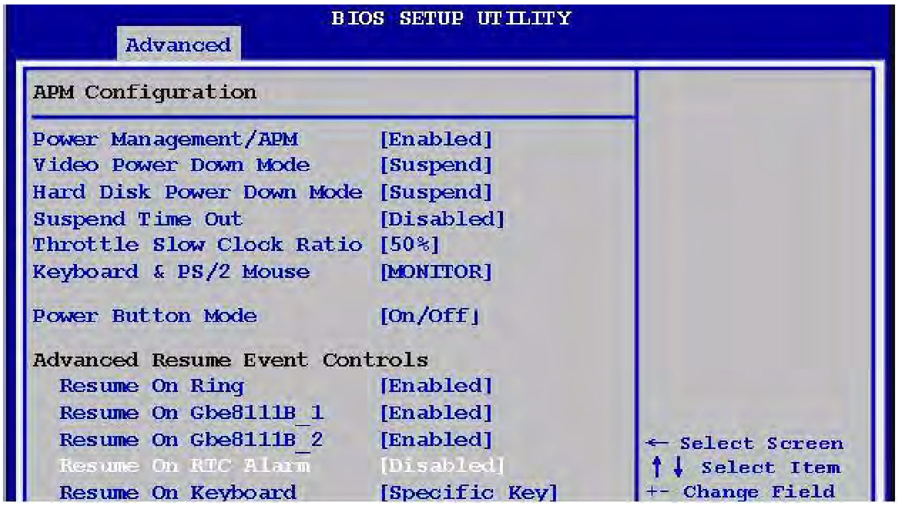
  Disable/Enabled LAN GPI to generate a wake event.

  The options: [Enabled], [Disabled].



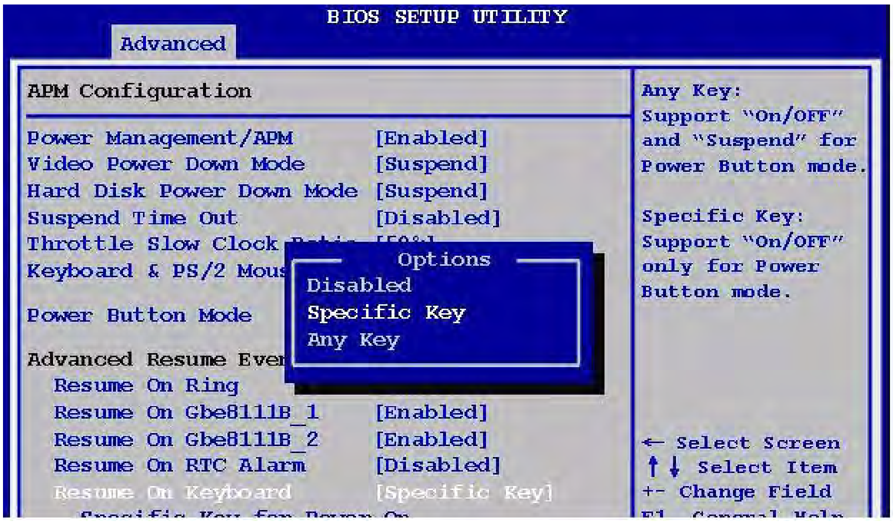
- Resume On RTC Alarm

  When [Enabled], your can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.



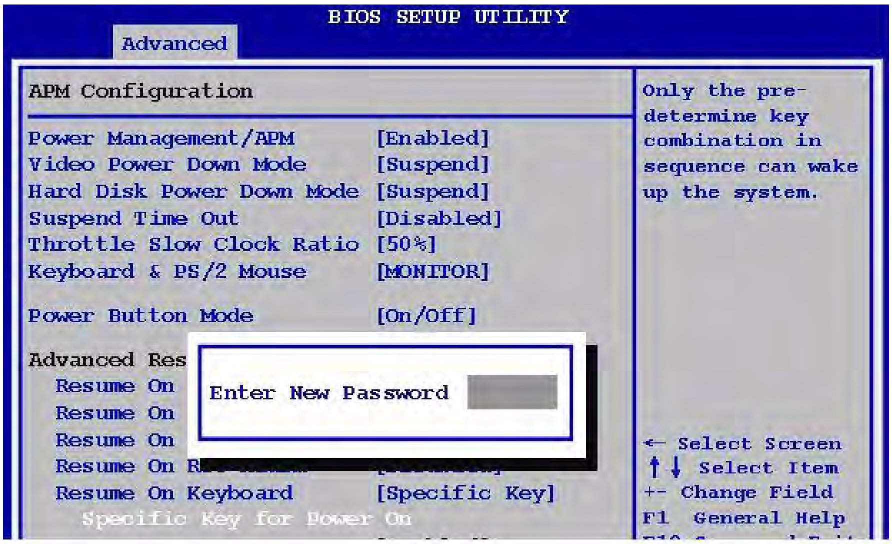
- Resume On Keyboard

The options: [Disabled], [Specific Key], [Any Key].

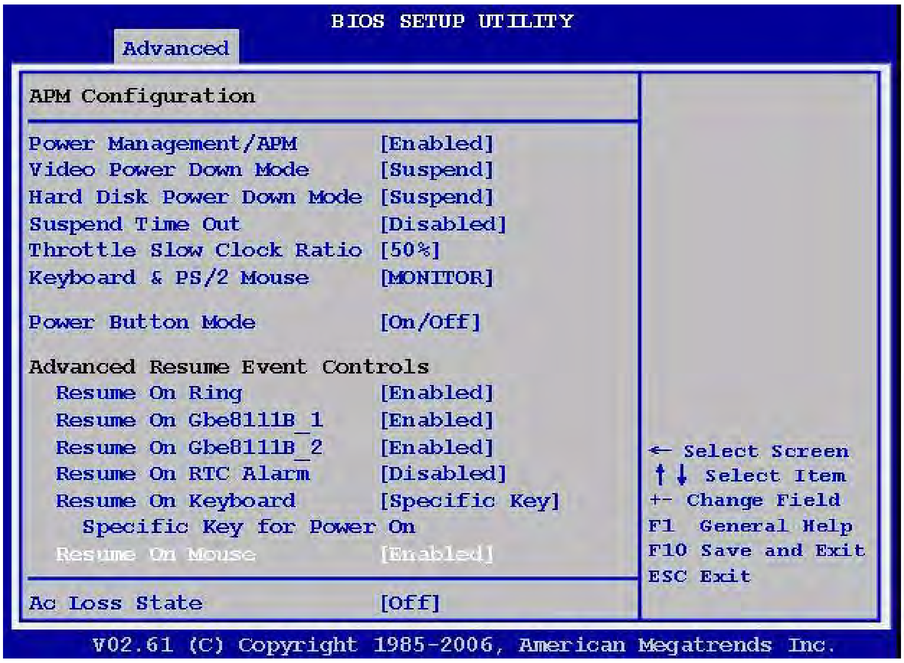


- Specific Key for PowerOn

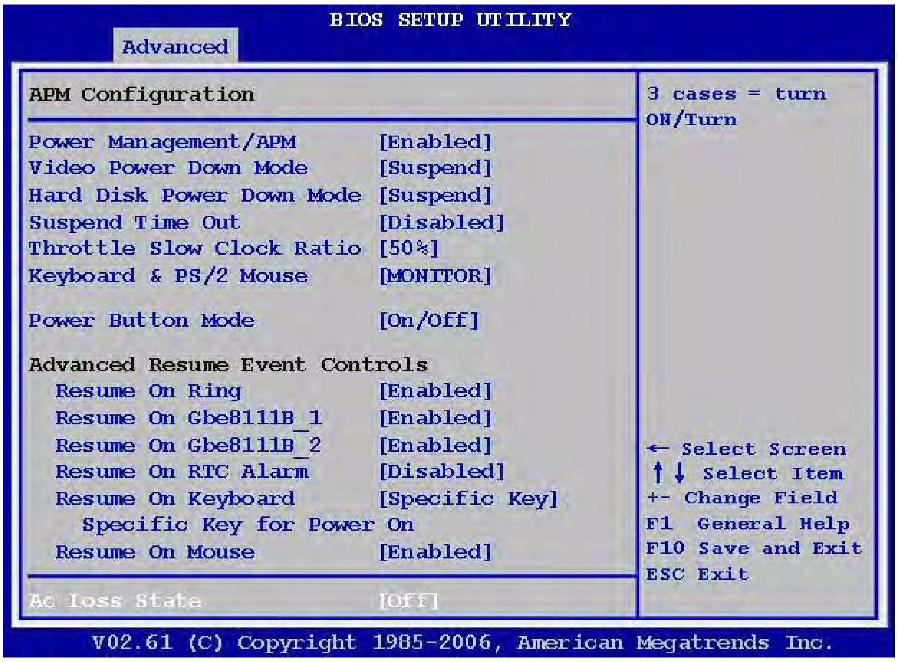
Predetermine key combination sequence that can wake up the system.



- Resume On Mouse
  The options: [Enabled], [Disabled].



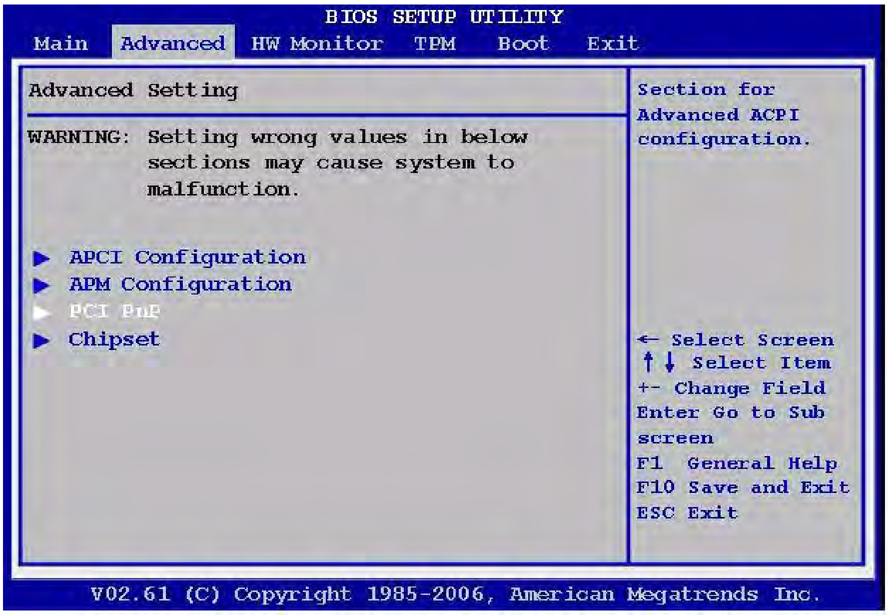
- Ac Loss State
  Select the reset mode if AC power is lost to the system.
  The options: [Off], [On], [Last].



2.2.2.3 PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/ PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.

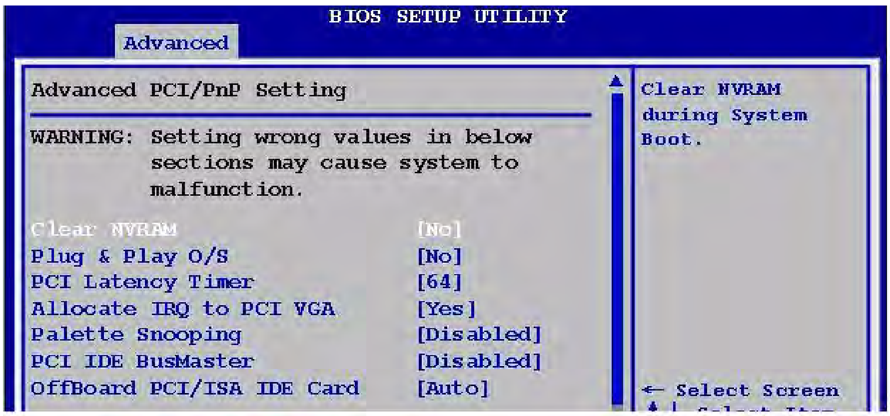
Warning! *Use caution when changing the settings of the PCI PnP menu items. Incorrect field values can cause the system to malfunction.*



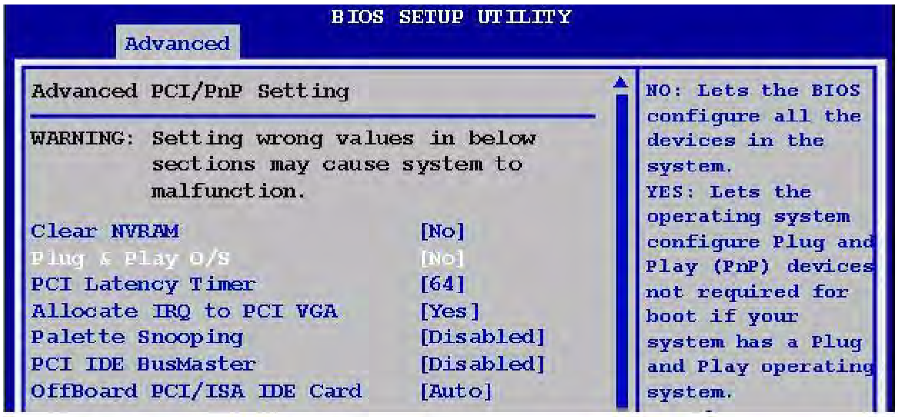
- Clear NVRAM

  Clear NVRAM during system boot.

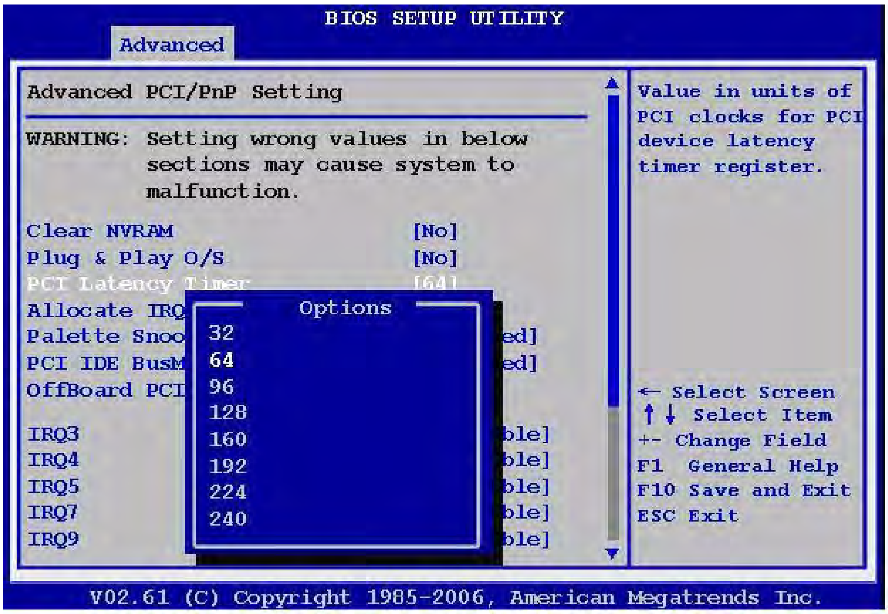
  The options: [No], [Yes].



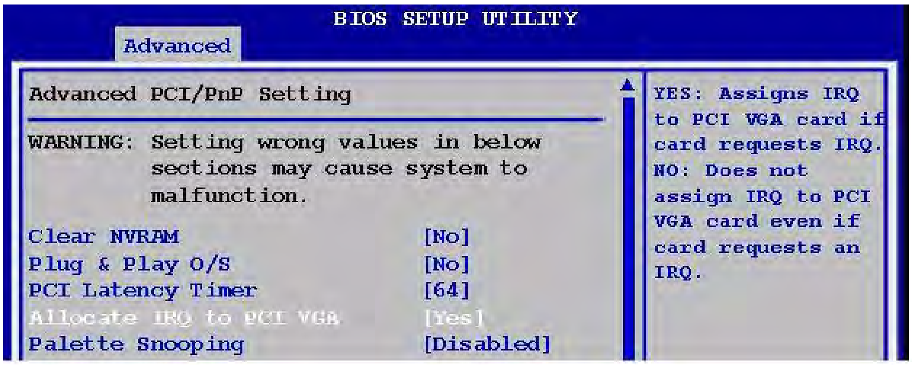
- Plug & Play O/S
  When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.
  The options: [No] [Yes].



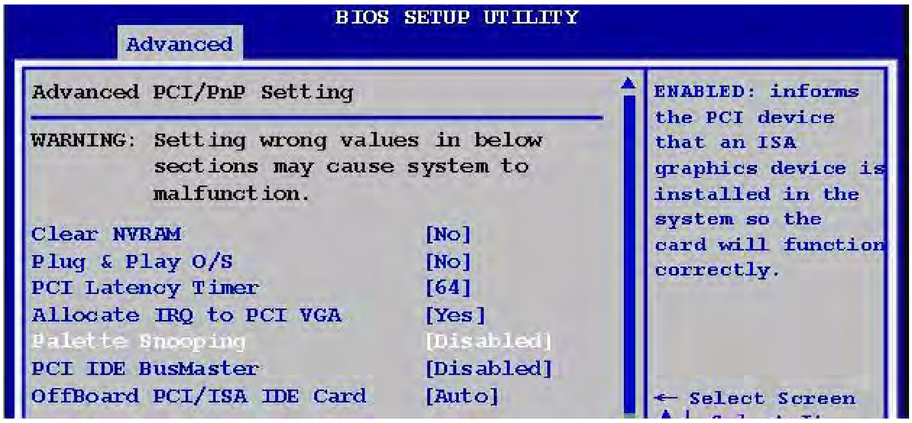
- PCI Latency Timer
  Allows you to select the value in units of PCI clocks for the PCI device latency timer register. The options: [32] [64] [96] [128] [160] [192] [224] [248].



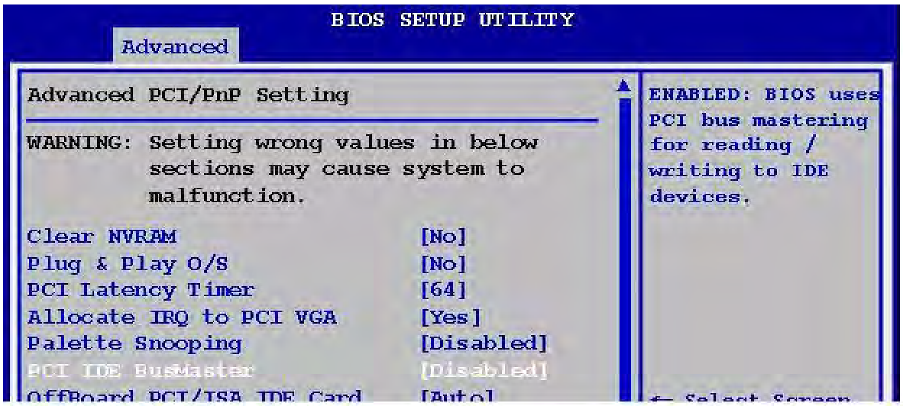
- Allocate IRQ to PCI VGA
  When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. The options: [No] [Yes].



- Palette Snooping
  When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly.
  The options: [Disabled] [Enabled].



- PCI IDE BusMaster the BIOS use PCI bus mastering for reading/writing to IDE device.
  The options: [Disabled], [Enabled].



- OffBoard PCI/ISA IDE Card

  Allows you to set the PCI slot number.

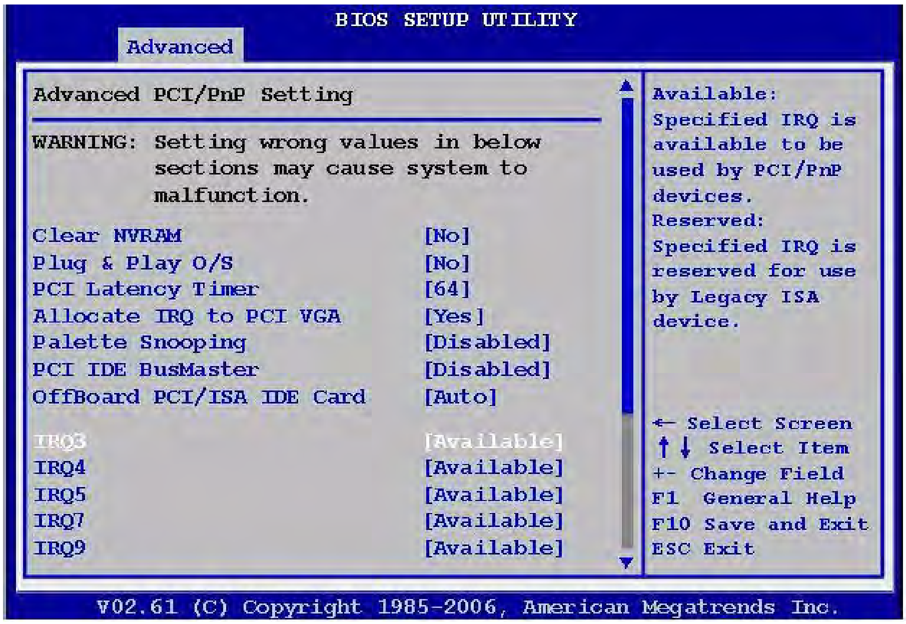
  The options: [Auto], [PCI Slot1], [PCI Slot2], [PCI Slot 3], [PCI Slot4], [PCI Slot5], [PCI Slot6].



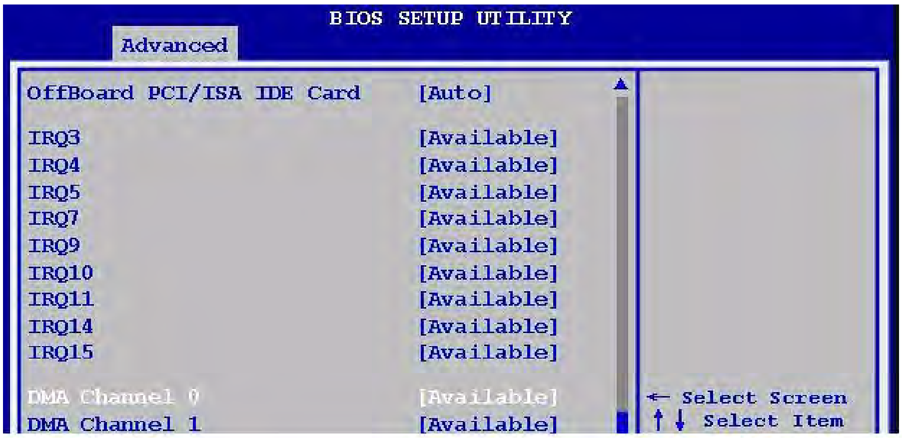
- IRQ3,4,5,7,9,10,11,14,15

  Allows you to specify IRQ that is available to be used by PCI/PnP or Legacy ISA device.

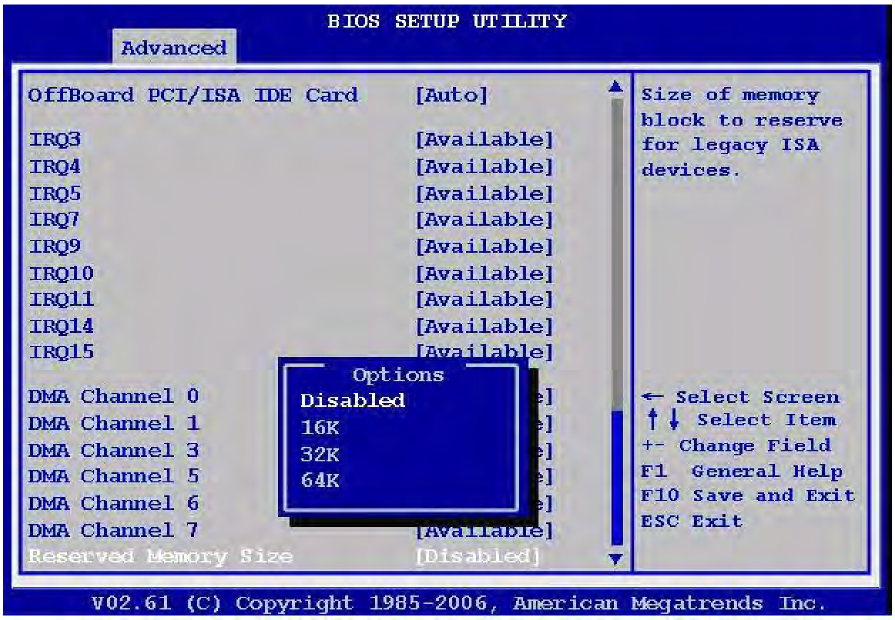
  The options: [Available], [Reserved].



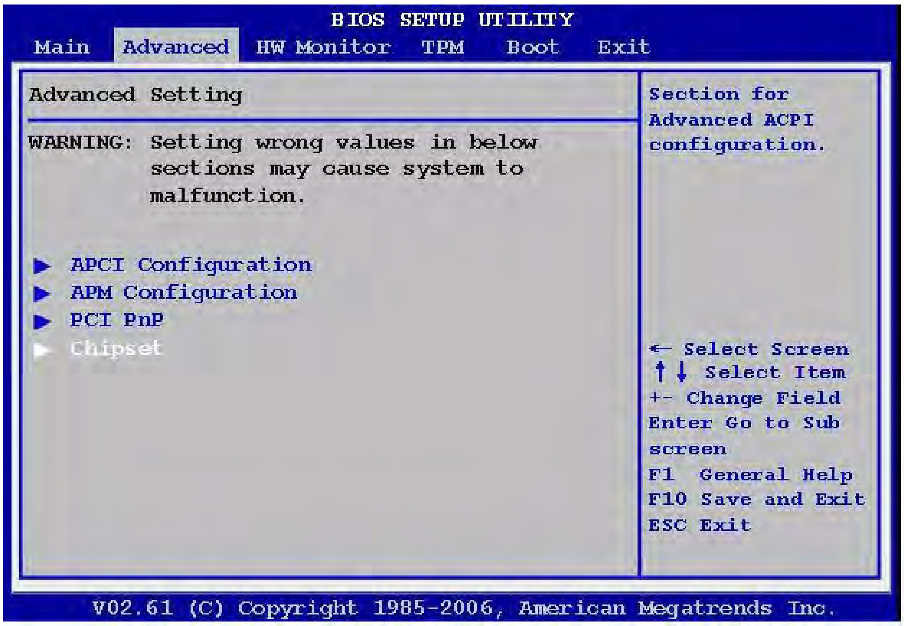
- DMA Channel 0,1,3,5,6,7
  DMA Channel PCI/PMP functions. The options: [Available], [Reserved].



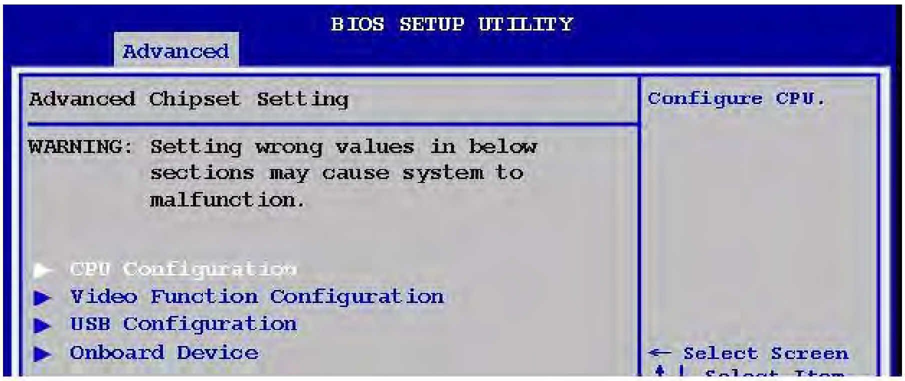
- Reserved Memory Size
  Set the size of memory block to reserve for legacy ISA devices.
  The options: [Disabled], [16 K], [32 K], [64 K].



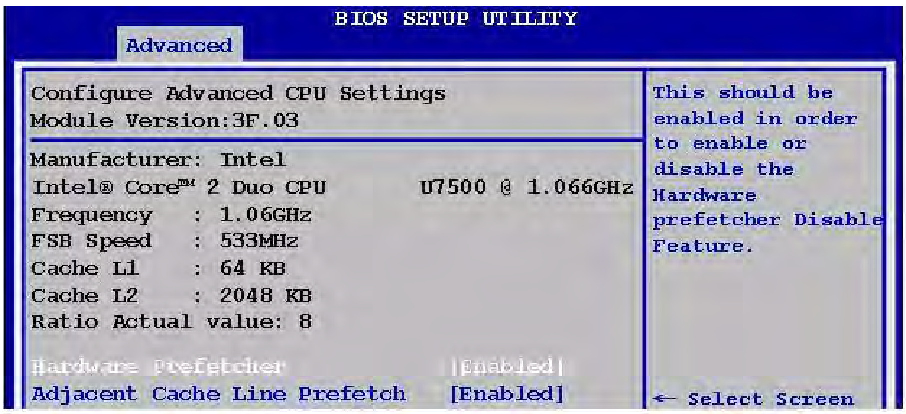
2.2.2.4 Chipset



- CPU Configuration



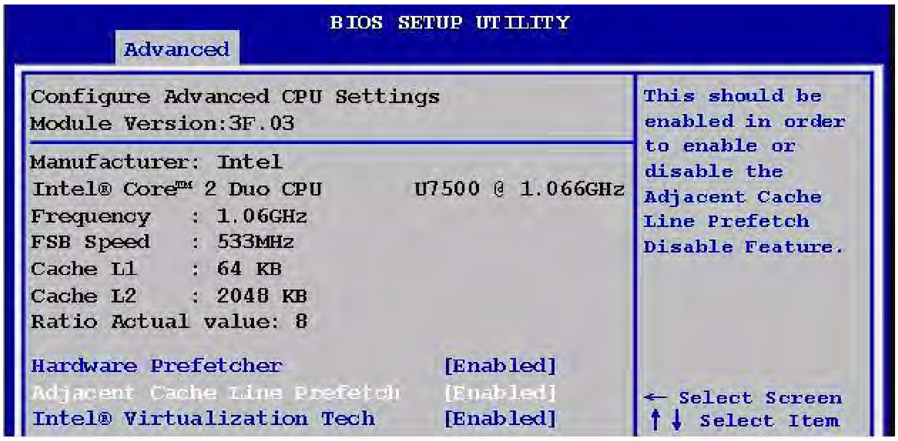
– Hardware Prefetcher
Allows you to Enable or Disable the Hardware Prefetcher Feature.
The options: [Enabled], [Disabled].



– Adjacent Cache Line Prefetch

Allows you to Enable/Disable the Adjacent Cache Line Prefetch Feature.

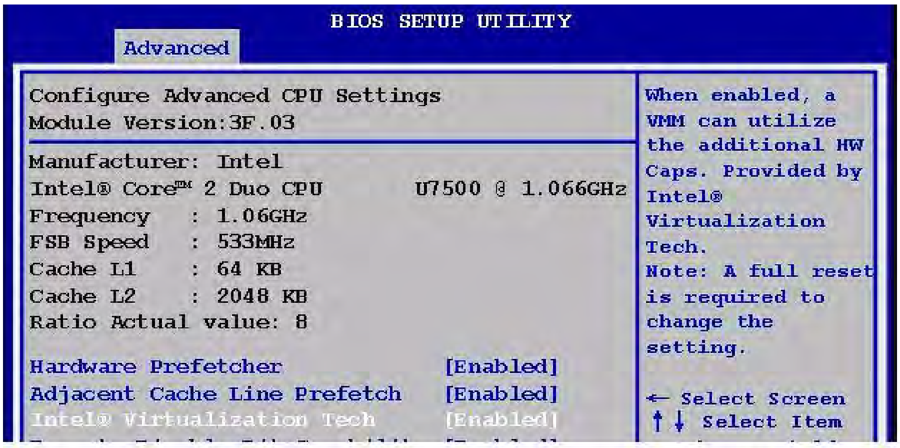
The options: [Enabled], [Disabled].



– Intel Virtualization Tech

Enable / Disable the function of Intel Virtualization Tech.

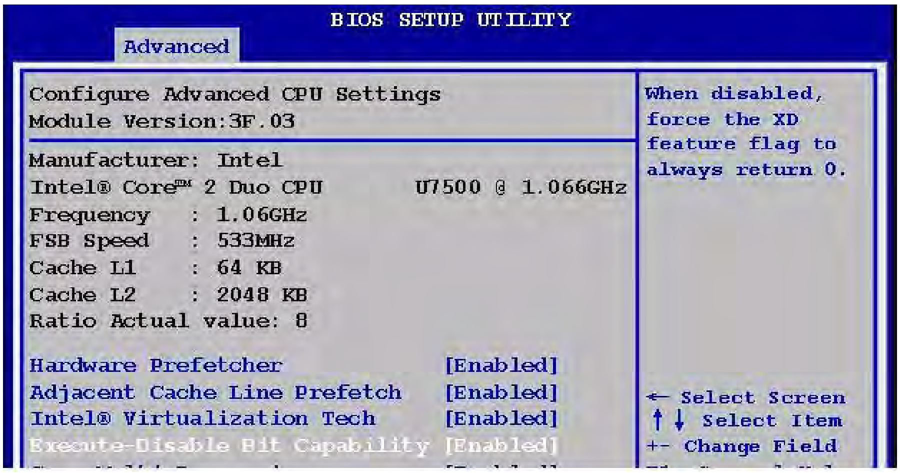
The options: [Enabled], [Disabled].



– Execute-Disable Bit Capability

Set the XD feature flag value.

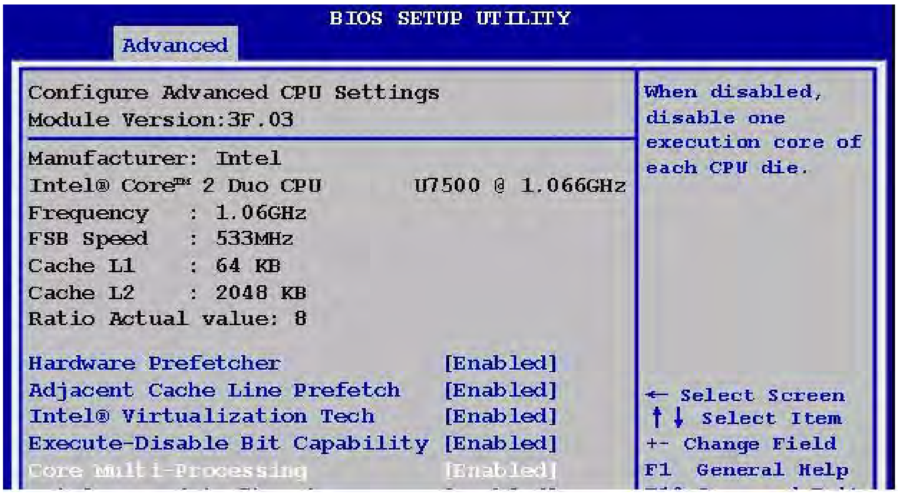
The options: [Enabled], [Disabled].



– Core Multi-Processing

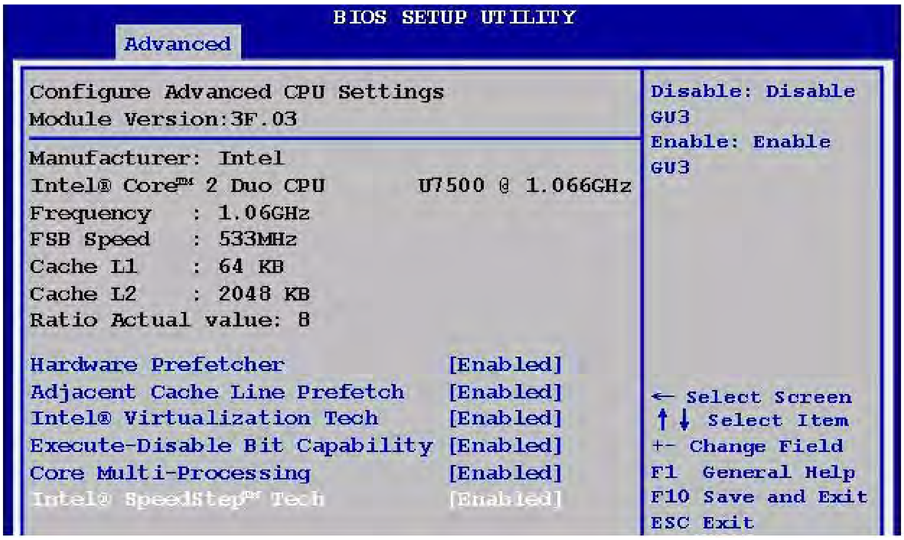
Allows you to Enable/Disable execution core of CPU die.

The options: [Enabled], [Disabled].

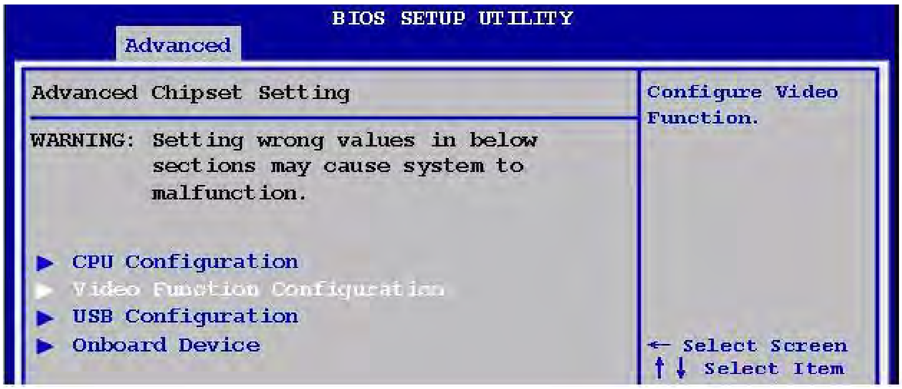


– Intel® SpeedStep™ Tech

Allows Enable/Disable of GU3 function. The options: [Enabled], [Disabled].



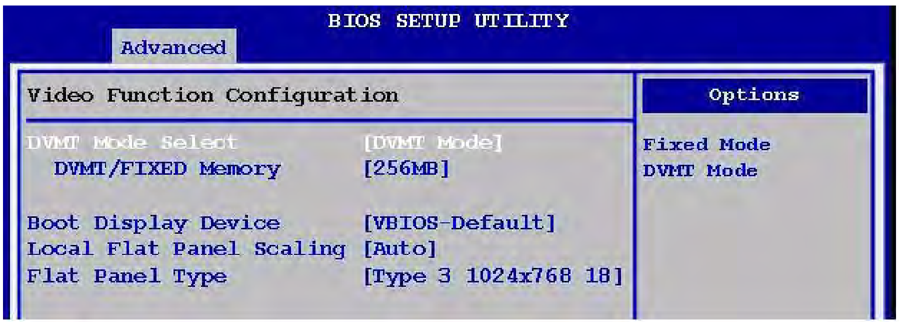
■ Video Function Configuration



– DVMT Mode Select

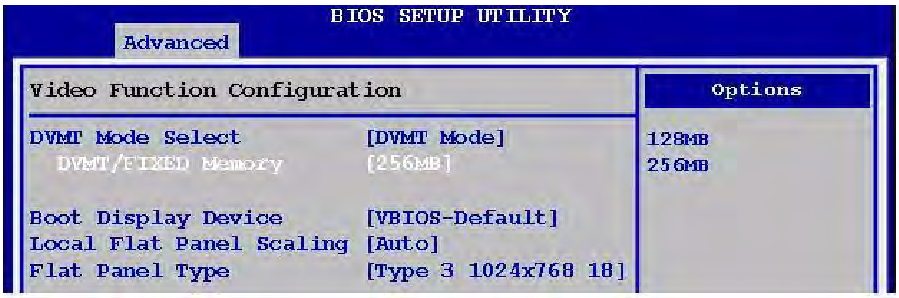
Select the DVMT Mode.

The options: [Fixed Mode], [DVMT Mode].



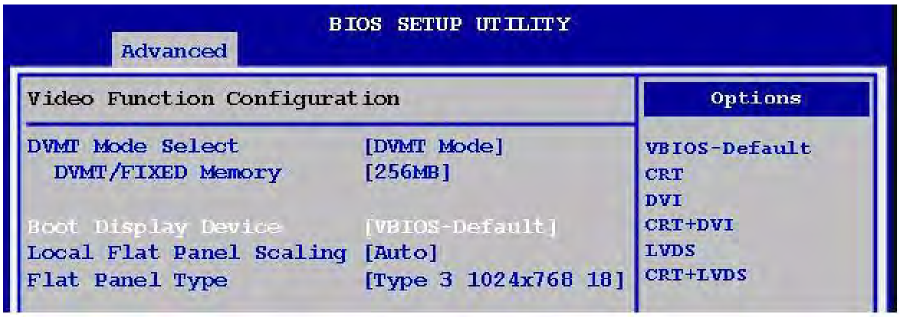
– DVMT/FIXED Memory

The options: [128 MB], [256 MB].



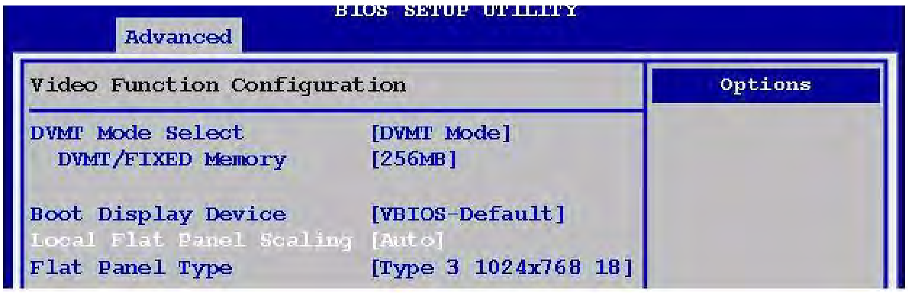
– Boot Display Device

The options: [VBIOS-Default], [CRT], [DVI], [CRT+DVI], [LVDS], [CRT+LVDS].



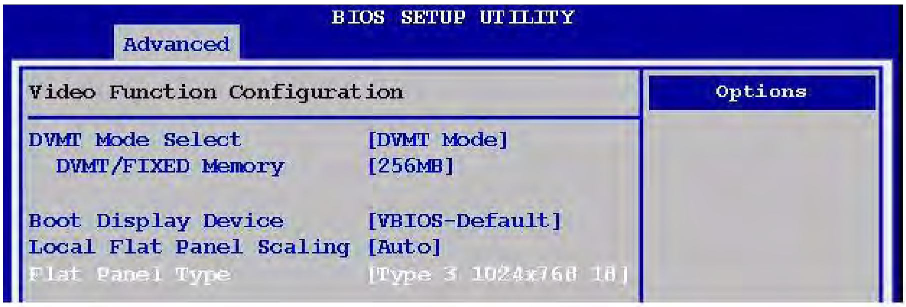
– Local Flat Panel Scaling

The options: [Auto], [No].



– Flat Panel Type

Flat Panel Type select.



The options:

[Type 1 640 x 480 18bit auto]

[Type 2 800 x 600 18bit auto]

[Type 3 1024 x 768 18bit auto]

[Type 4 1280 x 1024 18bit auto]

[Type 5 1280 x 1024 24bit auto]

[Type 6 1400 x 1050(2) 18bit auto]

[Type 7 1600 x 1200 18bit auto]

[Type 8 1280 x 768 18bit auto]

[Type 9 1680 x 1050 18bit auto]

[Type 10 1920 x 1200 18bit auto]

[Type 11 1024 x 768(1) 18bit auto]

[Type 12 1024 x 768(2) 18bit auto]

[Type 13 1024 x 768(3) 18bit auto]

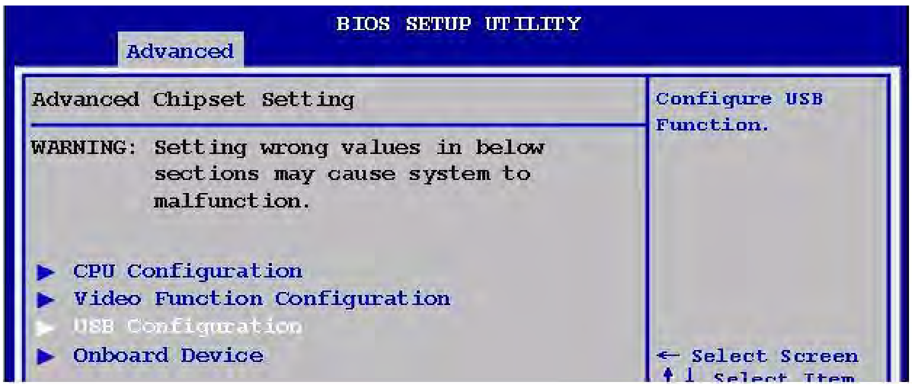
[Type 14 1280 x 800 18bit auto]

[Type 15 1280 x 600 18bit auto]

[Type 16 2048 x 1536 18bit auto]

- USB Configuration

  The items in this menu Allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.



– USB Function

Allows you to enable or disable the USB function.

The options: [Disabled], [2 USB Ports], [4 USB Ports], [6 USB Ports], [8 USB Ports], [10 USB Ports].

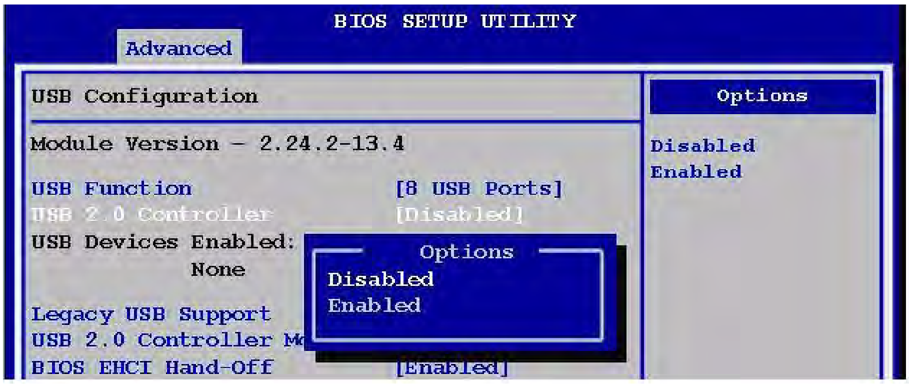


Note! *The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, then item shows None.*

– USB 2.0 Controller

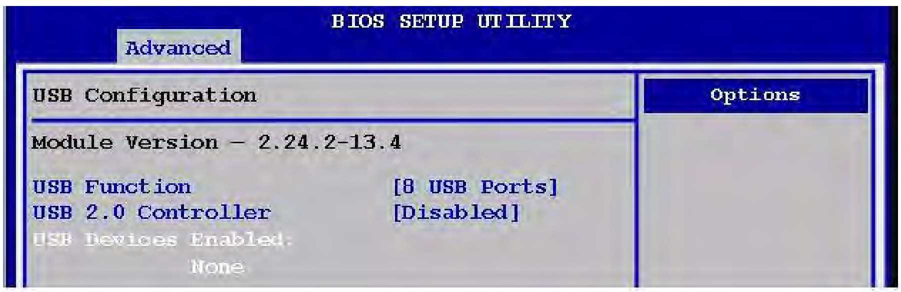
Allows you to enable or disable the USB 2.0 controller.

The options: [Disabled] [Enabled].



– USB Devices Enabled

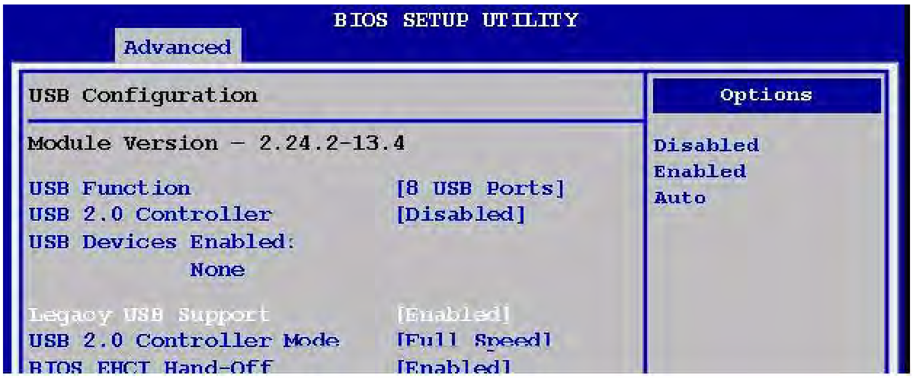
The USB Devices Enabled items show the auto-detected values. If no USB device is detected, then item shows [None].



– Legacy USB Support

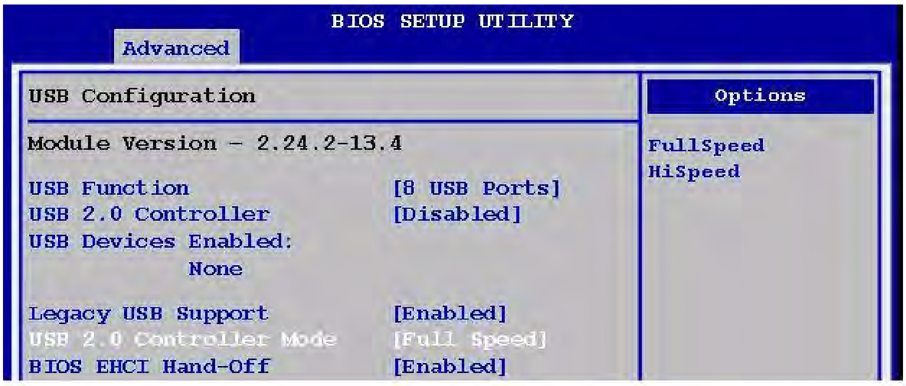
Allows you to enable or disable support for USB devices on legacy operating system (OS). Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

The options: [Disabled], [Enabled], [Auto].



– USB 2.0 Controller Mode

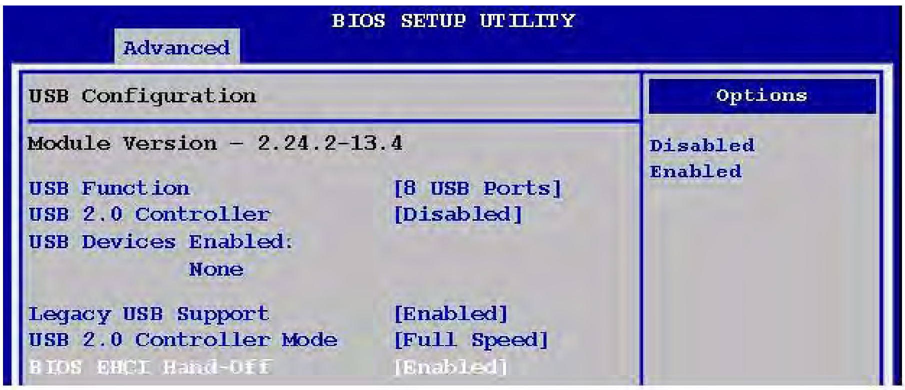
Allows you to configure the USB 2.0 controller in [HiSpeed (480 Mbps)] or [Full Speed (12 Mbps)]. The options: [FullSpeed], [HiSpeed].



– BIOS EHCI Hand-Off

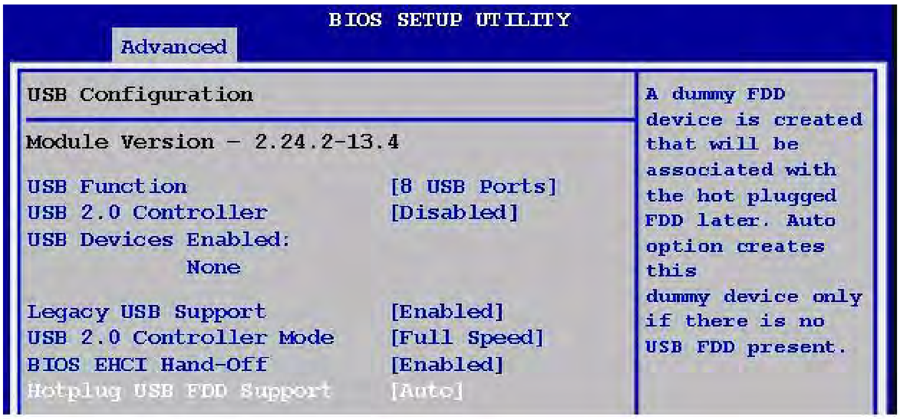
Allows you to enable support for operating systems without an EHCI hand-off feature.

The options: [Disabled], [Enabled].

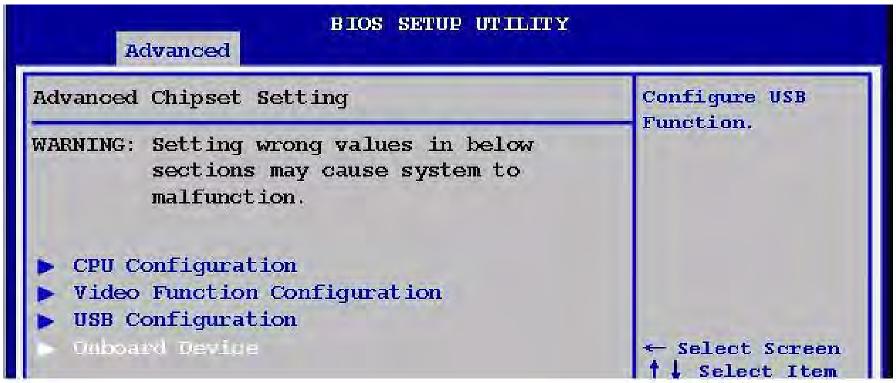


Note! *Do not disable the BIOS EHCI Hand-Off option if you are running a Windows® operating system with USB device.*

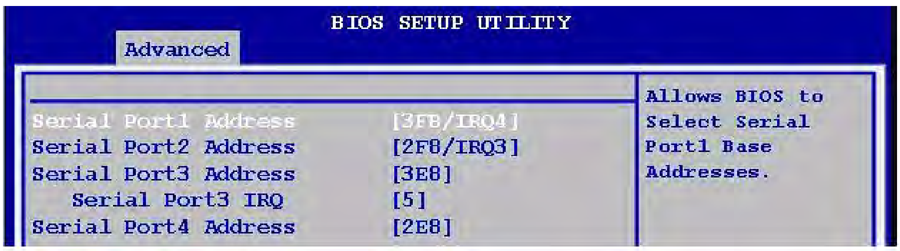
– Hotplug USB FDD Support
The options: [Disabled], [Auto].



■ Onboard Device



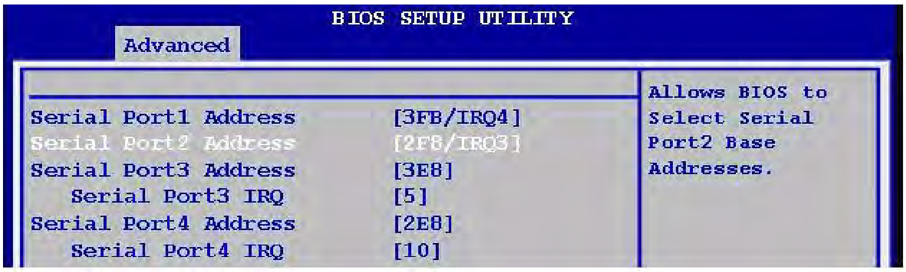
– Serial Port 1 Address
Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3].



– Serial Port 2 Address

Allows you to select the Serial Port2 base address.

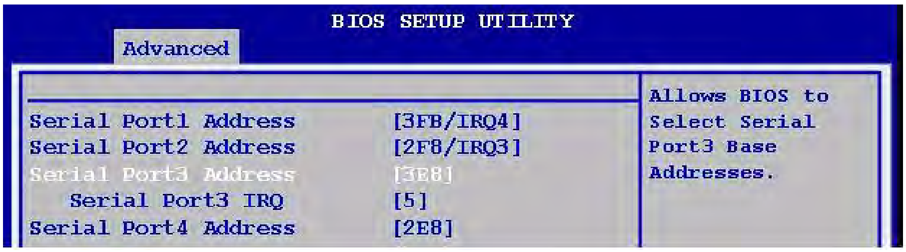
The options: [Disabled], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4], [2E8/IRQ3].



– Serial Port 3 Address

Allows you to select the Serial Port3 base address.

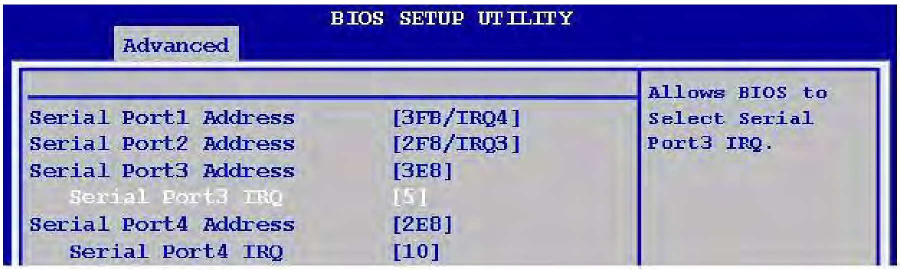
The options: [Disabled], [3E8], [2E8].



– Serial Port 3 IRQ

Allow BIOS to select Serial Port 3 IRQ.

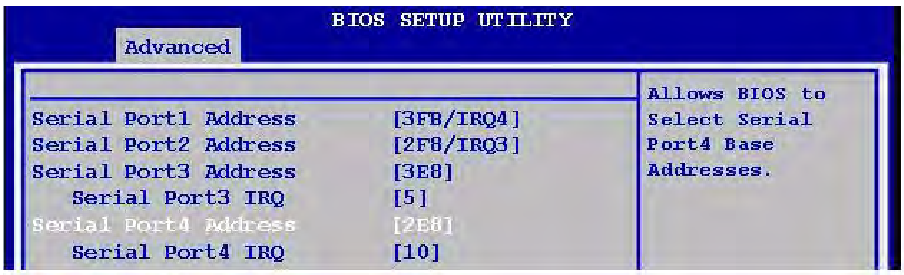
The options: [3], [4], [5], [10].



– Serial Port 4 Address

Allows you to select the Serial Port4 base address.

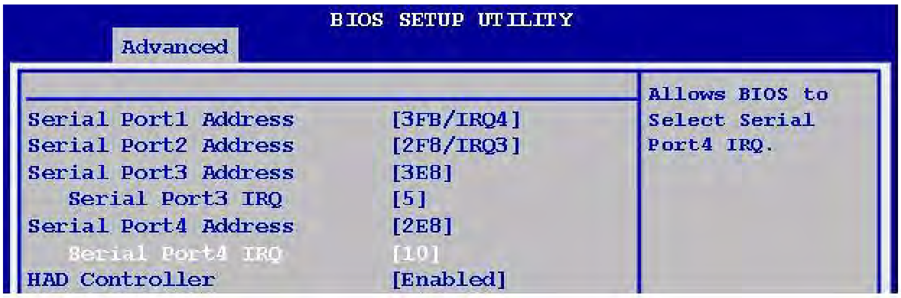
The options: [Disabled], [3E8], [2E8].



– Serial Port 4 IRQ

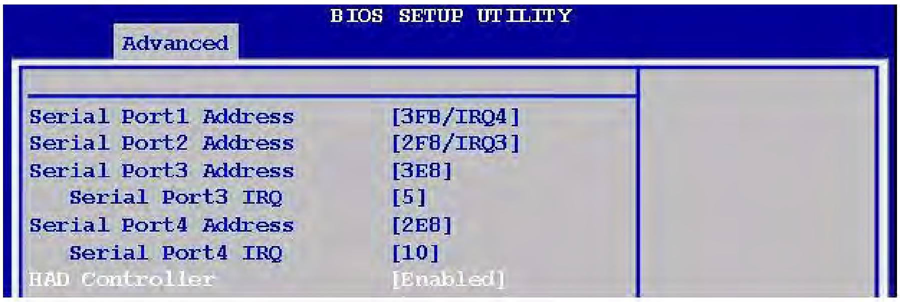
Allow BIOS to select Serial Port 4 IRQ.

The options: [3], [4], [5], [10].



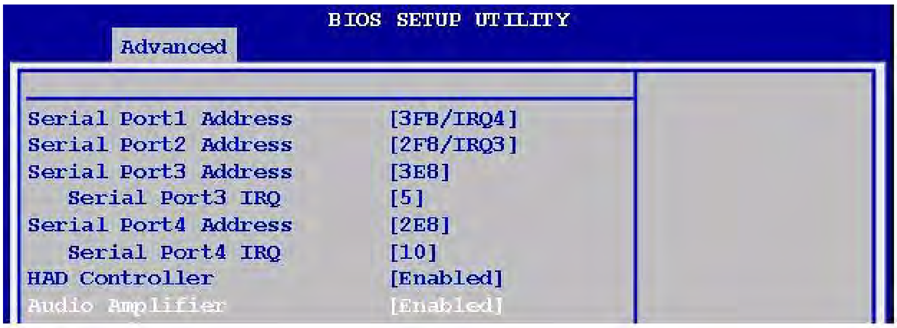
– HAD Controller

The options: [Enabled], [Disabled].

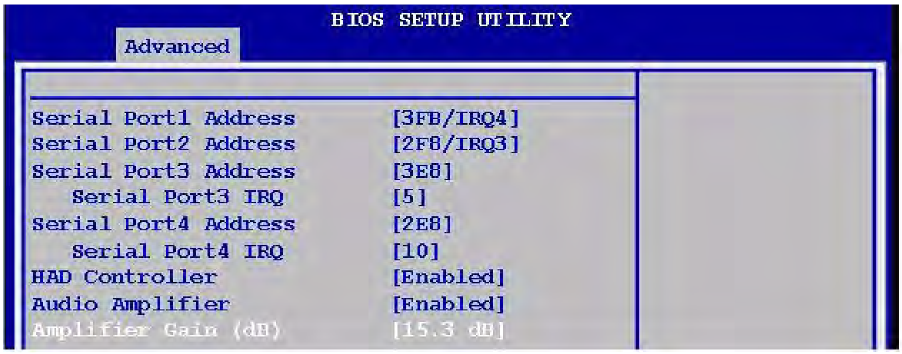


– Audio Amplifier

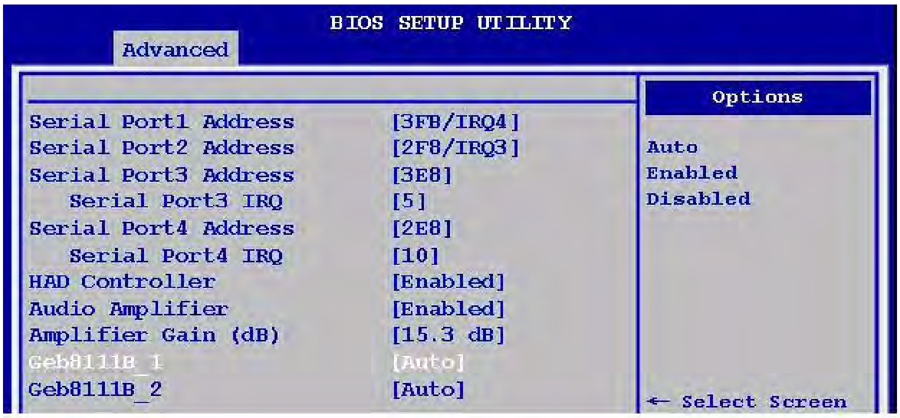
The options: [Enabled], [Disabled].



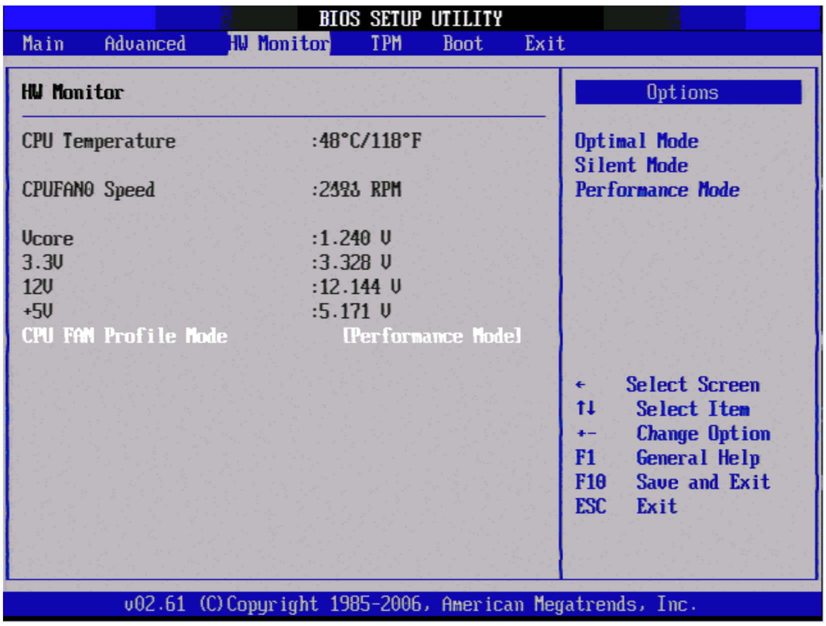
– Amplifier Gain (dB)
The options: [31.8 dB], [27.2 dB], [21.2 dB], [15.3 dB].



– GeB8111B_1/2
The options: [Auto], [Enabled], [Disabled].



2.2.3 HW Monitor



2.2.3.1 CPU Temperature

The onboard hardware monitor automatically detects and displays the CPU temperatures. Select [Ignored] if you do not wish to display the detected temperatures.

2.2.3.2 AUXFAN Speed

The onboard hardware monitor automatically detects and display the CPU fan speed in rotations per minute (RPM). If the an is not connected to the motherboard, the field shows N/A.

2.2.3.3 Vcore / 3.3 V / 12 V / +5 V

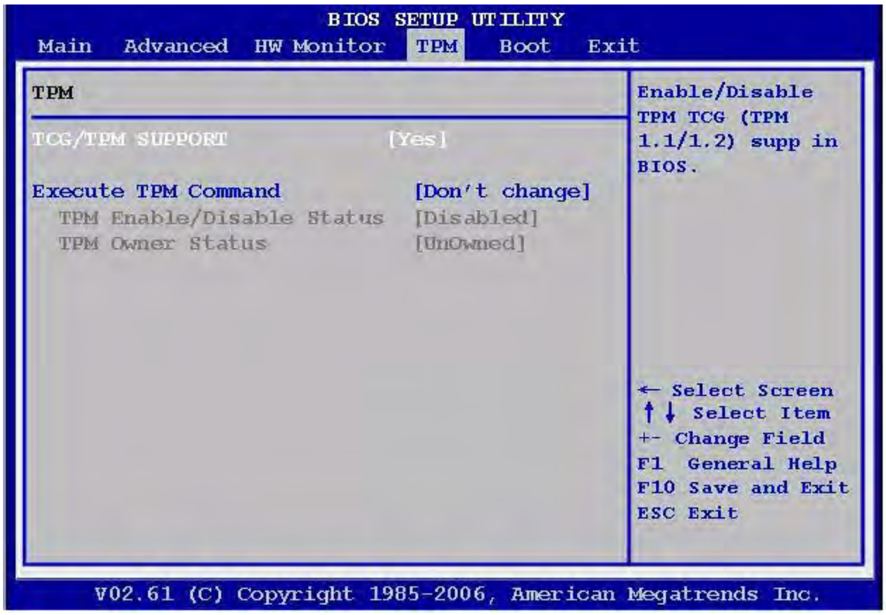
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select [Ignored] if you do not wish to display these items.

2.2.3.4 CPU FAN Profile Mode

Allows you to select the CPU FAN profile mode.

The options: [Optional Mode], [Silent Model], [Performance Mode].

2.2.4 TPM



2.2.4.1 TCG/TPM Support

Enable/Disable TPM TCG support function. The options: [Yes], [No].

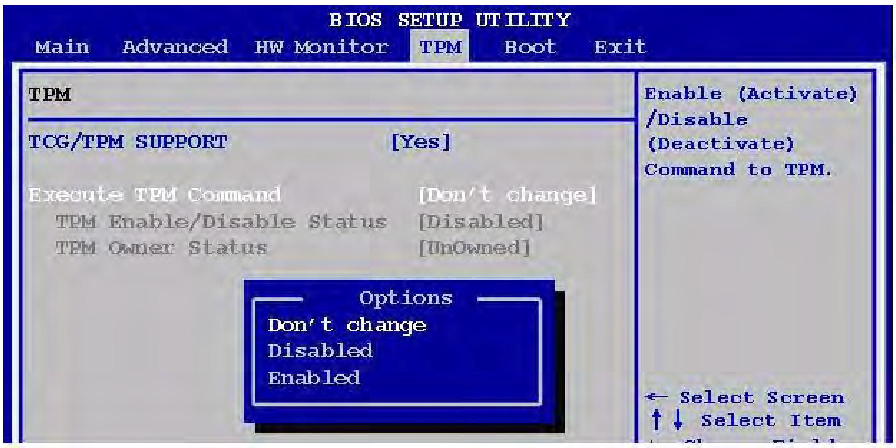




2.2.4.2 Execute TPM Command

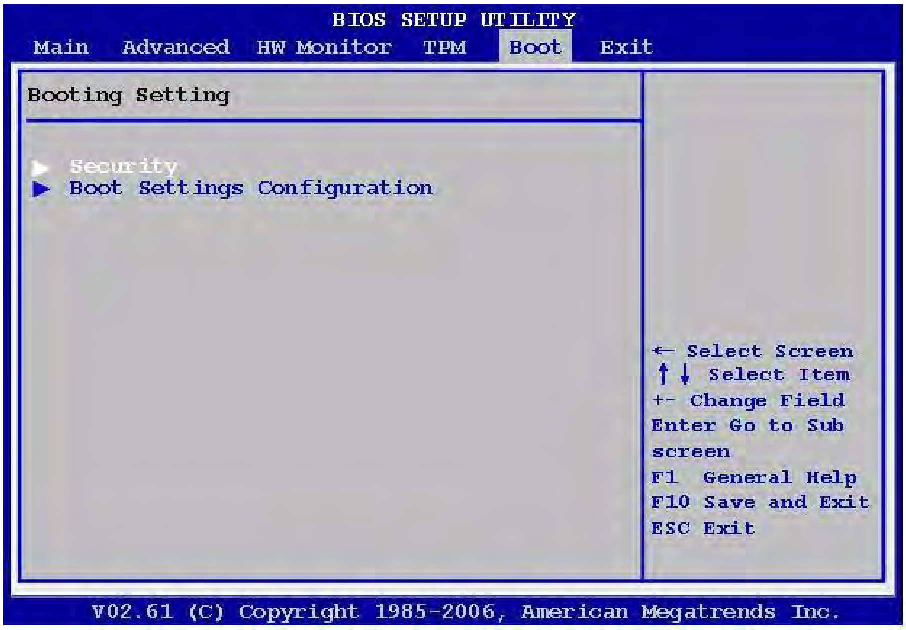
Enable/Disable Execute TPM command.

The options: [Don't change], [Disabled], [Enabled].



2.2.5 Boot

The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.



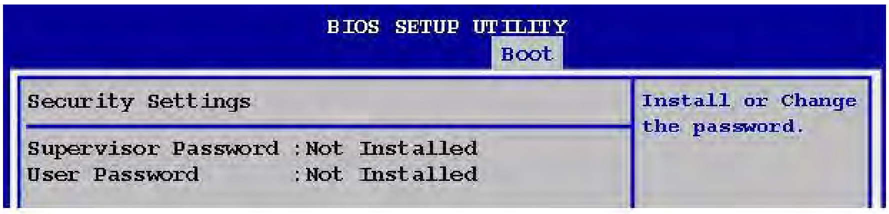
2.2.5.1 Security

The security menu items allow you to change the system security settings. Select an item then press <Enter> to display the configuration options.



- Supervisor / User Password

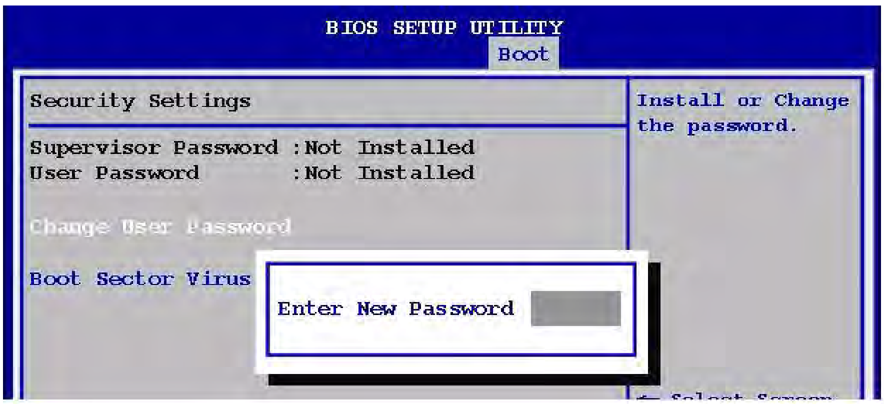
  The Supervisor/User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.



- Change User Password

  Select this item to set or change the Supervisor/User Password.

  1. Select the Change Supervisor/User Password item and press <Enter>
  2. From the password box, type a password composed of at least six letters and/or number, the press <Enter>.



  3. Confirm the password when prompted.

The message “Password Installed” appears after you successfully set your password.

To clear the supervisor/user password, select the change Supervisor/User Password then press <Enter>. The message “Password Uninstalled” appears.

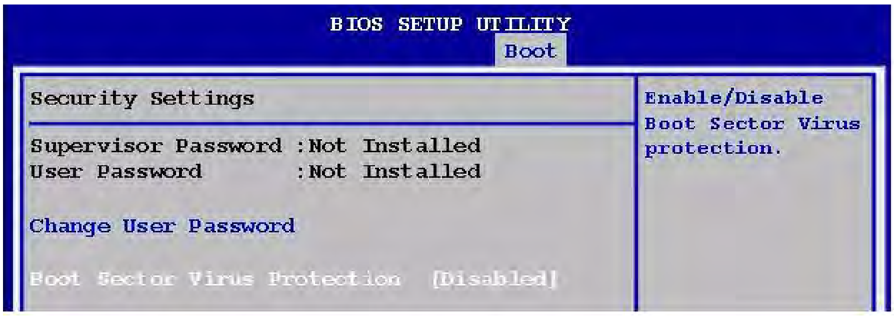
After you have set a supervisor password, the other items appear to Allows you to change other security settings.

Note! *If you forget your BIOS password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM.*

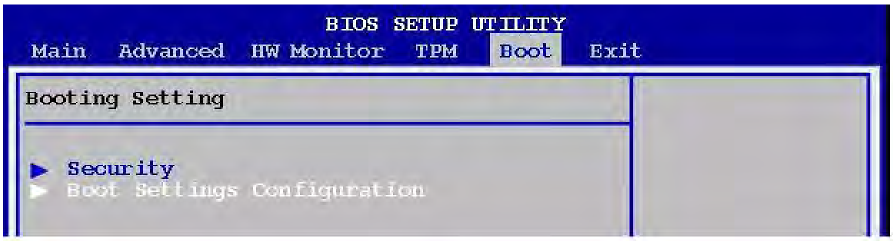
- Boot Sector Virus Protection

  Set Enable/Disabled Boot Sector Virus protection.

  The options: [Enabled], [Disabled].

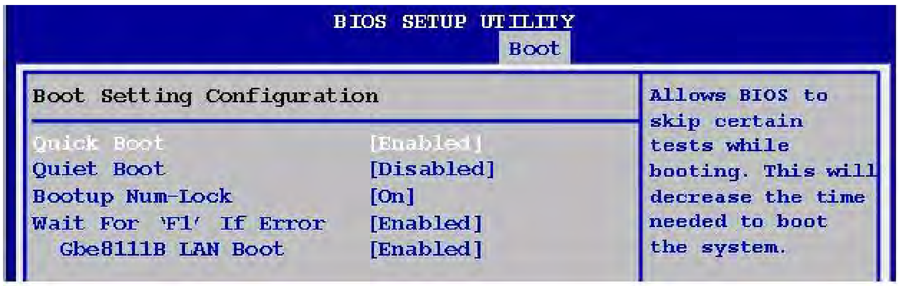


2.2.5.2 Boot Setting Configuration

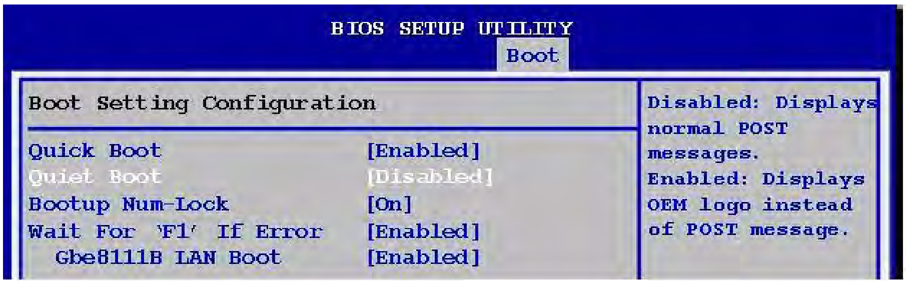


- Quick Boot

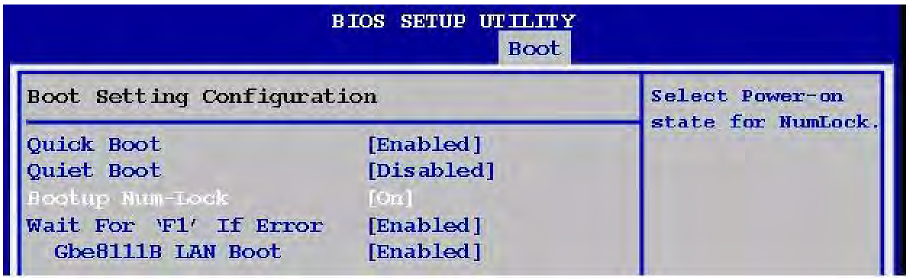
  Enable this item allows the BIOS to skip some power on self test (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items. The options: [Disabled], [Enabled].



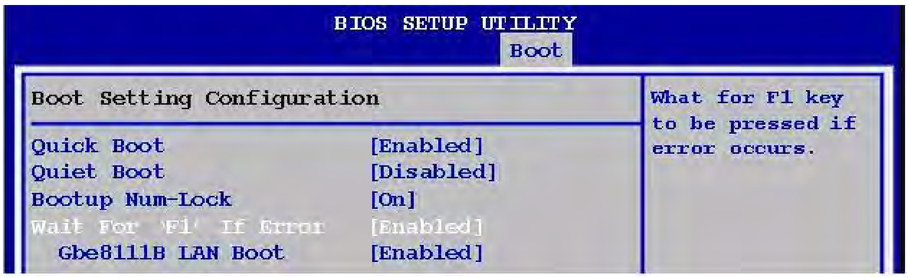
- Quiet Boot
  Allows you to display Normal POST message or OEM logo.
  The options: [Disabled], [Enabled].



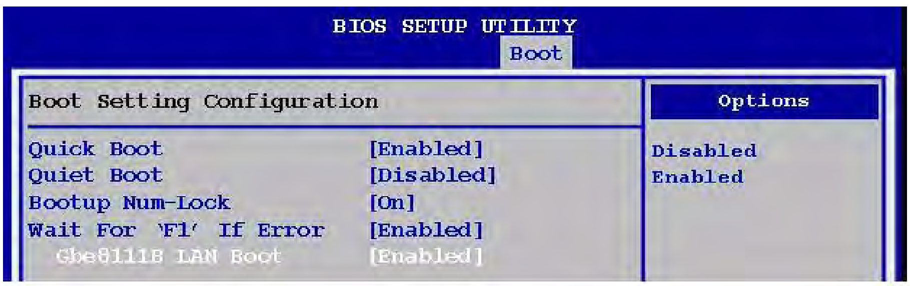
- Bootup Num-Lock
  Allows you to select the power-on state for the NumLock.
  The options: [Off], [On].



- Wait for ‘F1’ If Error
  When set to Enabled, the system waits for the F1 key to be pressed when error occurs. The options: [Disabled], [Enabled].

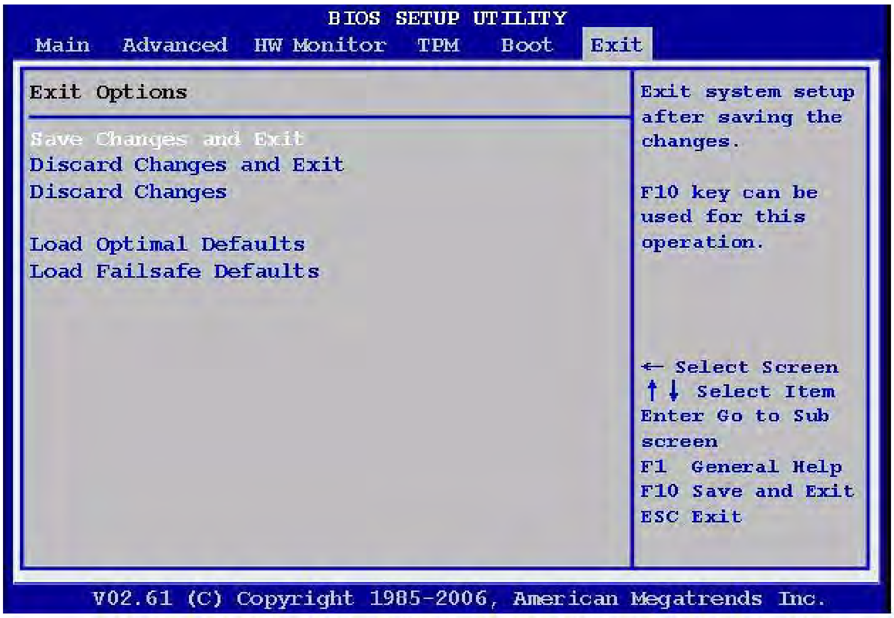


- Gbe8111B LAN Boot
  Select Enable or Disabled Gbe8111B LAN Boot.



2.2.6 Exit

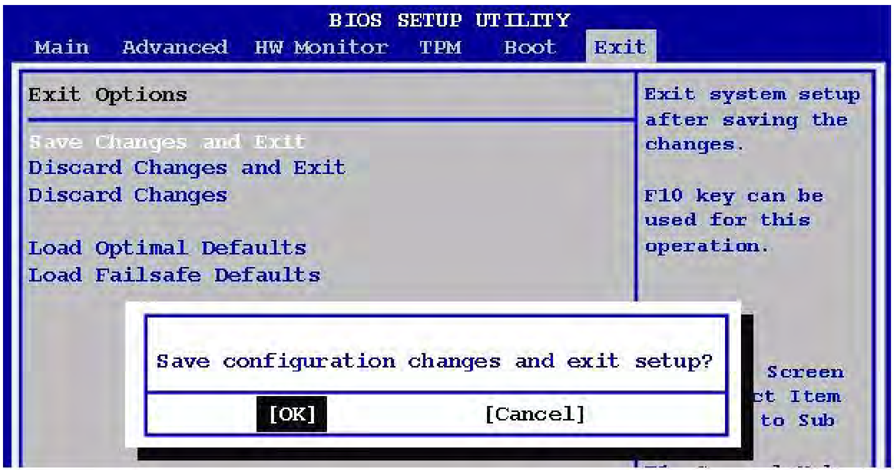
This Exit menu items allow you to load the optimal or failsafe default value for the BIOS items, and save or discard your changes to the BIOS items.



Note! *Press <ESC> does not immediately exit this menu. Select on of the options from this menu or <F10> from the legend bar to exit.*

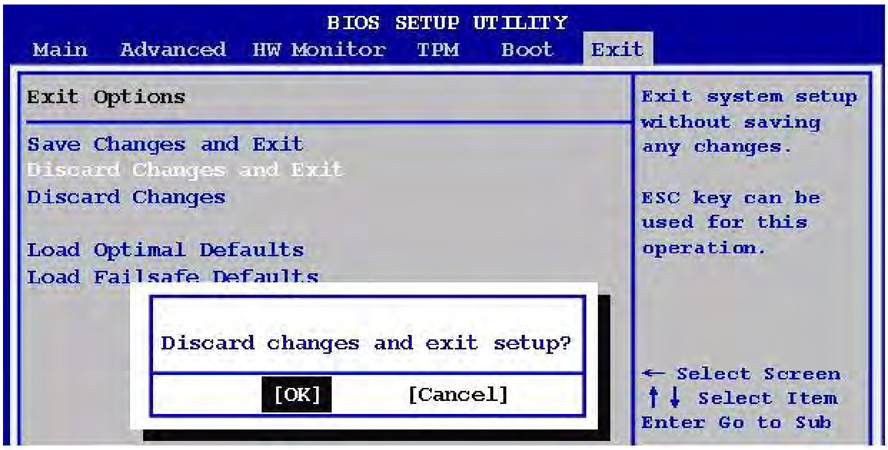
2.2.6.1 Save Changes and Exit

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select [OK] to save change and exit.



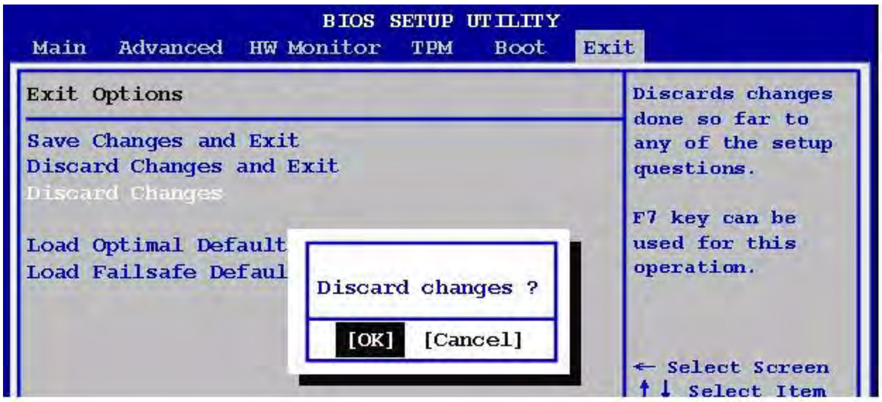
2.2.6.2 Discard Changes and Exit

Select this option only if you do not want to save the changes that you made to the setup program. If you made changes to fields other than System Date, System time, and Password, the BIOS asks for a confirmation before exiting.



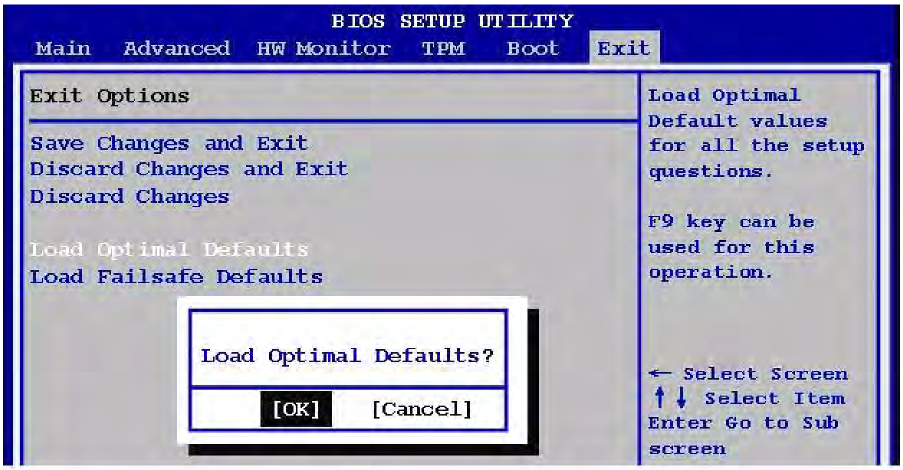
2.2.6.3 Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [OK] to discard any changes and load the previously saved values.



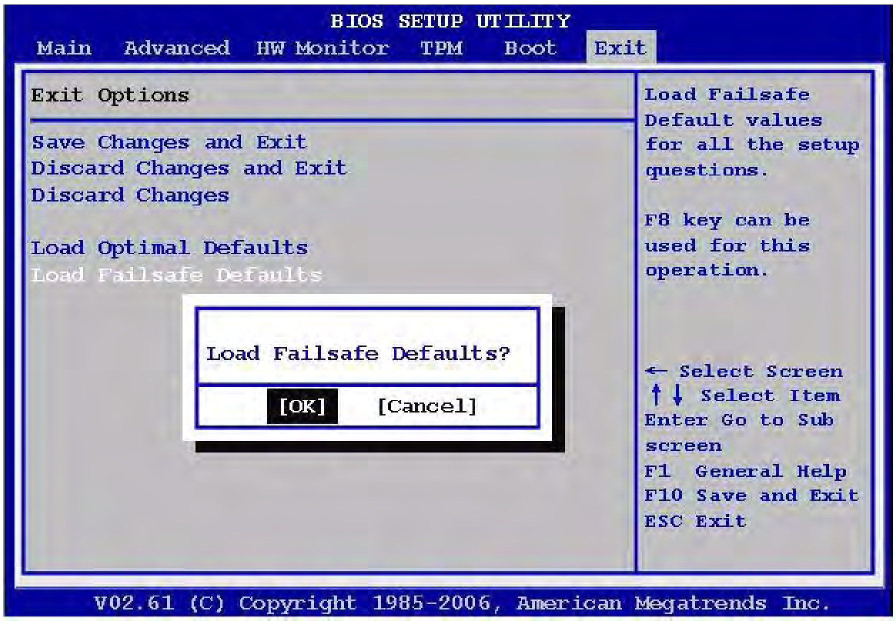
2.2.6.4 Load Optimal Defaults

This option allows you to load the optimal default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [OK] to load optimal default values. Select [Save Change and Exit] or make other changes before saving the values to the non-volatile RAM.



2.2.6.5 Load Failsafe Defaults

This option allows you to load the failsafe default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [OK] to load failsafe default values.



Appendix A

Specifications

A.1 Specifications Summary

Table A.1: AIMB-256 Specification Summary		
Features	1	Supports Intel socket P Core 2 Duo / Core Solo mobile CPU with 65nm process technology
	2	Intel GME965 Chipset
	3	Two 200-pin SODIMMs sockets up to 4GB Dual Channel DDR2 533/667 SDRAM
	4	Intel Graphics Media Accelerator X3100
	5	DVI, Dual Channel 18/24-bit LVDS
	6	Realtek ALC888 5.1+2 CH Audio (5 W x 2-CH Amplified) with Dual Independent Audio Streams
	7	Dual Gigabit Lan Realtek RTL8111B
	8	Gigabit LAN Realtek RTL8111B
	9	One PCI slot
	10	4 COM,10 USB 2.0, 3 SATA TPM INFINEON SLB9635TT Module Onboard (Optional)
System		
CPU		Supports Intel socket P Core 2 Duo / Core Solo mobile CPU with 65nm process technology
FSB		533/800 MHz
BIOS		AMI 16 Mb SPI BIOS
System Chipset		Intel GME965/ICH8M
I/O Chipset		Winbond W83627DHG-A
Memory		Two 200-pin SODIMM sockets support up to 4 GB Dual Channel DDR2 533/667 SDRAM
SSD		One CompactFlash Type I/II socket
Watchdog Timer		Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor		Monitoring CPU temperature, voltage, and cooling fan status. Auto throttling control when CPU is overheat
Expansion Slots		One PCI slot (PCI Rev. 2.2 compliant) supports 3 PCI master
S3		S3 Support
Smart Fan Control		Yes
I/O		
MIO		1x EIDE, 3 x SATA, 10 x USB, 4 x RS232, 1 x K/B, 1 x Mouse, (COM1~4 with 5 V and/or 12 V Power output)
USB		10 x USB 2.0
DIO		8-bit General Purpose I/O for DI and DO
Internal I/O		3 x USB connectors support additional 6 USB ports 1 x 20-pin ATX Power connector,1 x IDE 40-pin connector for two devices 2 x COM port header,3 x SATA connectors,1 x Front panel audio connector 1 x Audio amplifier connector (Optional),1 x System panel connector 1 x LVDS connector,1 x Inverter Power connector,1 x CPU Fan connector 1 x System Fan connector,1 x Digital IO header 1 x SPDIF Out connector reserved
Back Panel		1 x PS/2 Keyboard,1 x PS/2 Mouse,2 x RS-232,1 x VGA port,1 x DVI port 4 x USB 2.0/1.1, 2 x LAN RJ45 Port (one existed, another option) 5.1 + 2 CH Audio I/O (3 jacks)

Table A.1: AIMB-256 Specification Summary	
Display	
Chipset	Intel Graphics Media Accelerator X3100
Display Memory	Intel DVMT 4.0 supports 384 MB video memory
Resolution	2048 x 1536 @ 32 bpp (@ 60 Hz)
Dual Display	CRT + LVDS, or CRT + DVI-D
LVDS	Dual-channel 24-bit LVDS
DVI	Chrontel CH7307C DVI transmitter up to 165M pixels/second
Audio	
Audio Codec	Realtek ALC888 Audio Code 5.1+2 ch. with two independent audio stream
Audio Interface	Mic in, Line in, Line out
Audio Amplifier (Optional)	TPA3005D2 Stereo 5 Watt per channel
Ethernet	
LAN1	Realtek RTL8111B PCI-E Gigabit Ethernet Controller
LAN2	Realtek RTL8111B PCI-E Gigabit Ethernet Controller (optional)
Mechanical & Environmental	
Power Type	ATX
Operating Temperature	0 ~ 60° C (32 ~ 140° F)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.88 lbs (0.4 Kg)

* Specifications are subject to change without notice.

A.2 Block Diagram

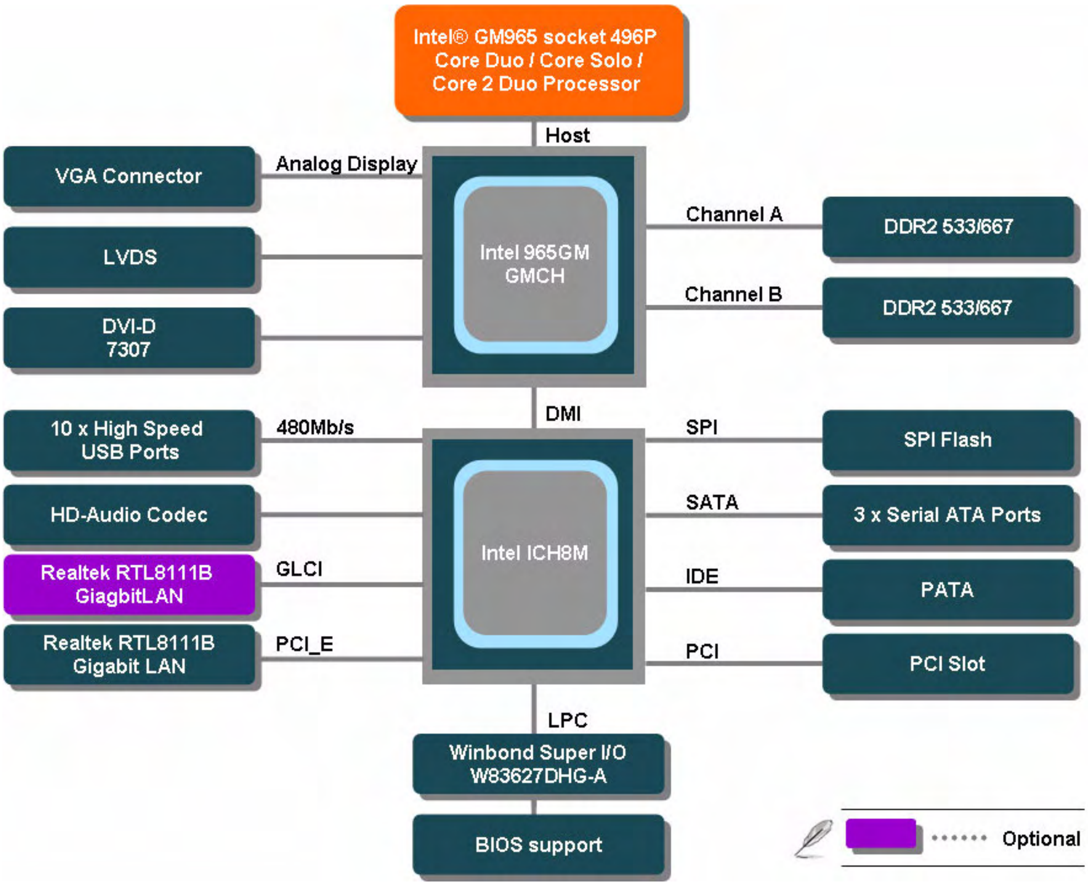


Figure A.1 Block Diagram

Trusted ePlatform Services

ADVANTECH

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.